WT-1317 (EX)
EXTRACTED VERSION

OPERATION REDWING

410881

Project 2.63
Characterization of Fallout

Pacific Proving Grounds
May-July 1956

Headquarters Field Command
Defense Atomic Support Agency
Sandia Base, Albuquerque, New Mexico

March 15, 1961

NOTICE

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number):
Operation REDWING
Fallout
Surface Radiation

20. ABSTRACT (Continue on reverse side if necessary and identify by block number): The general objective was to obtain data sufficient to characterize the fallout, interpret the aerial and oceanographic survey results, and check fallout-model theory for Shots Cherokee, Zuni, Flathead, Navajo, and Tewa during Operation REDWING. Detailed measurements of fallout buildup were planned. Measurements of radiation characteristics and physical, chemical, and radiochemical properties of individual solid and slurry particles and total cloud and fallout samples were also planned, along with determinations of the surface densities of activity and environmental components in the fallout at each major station.

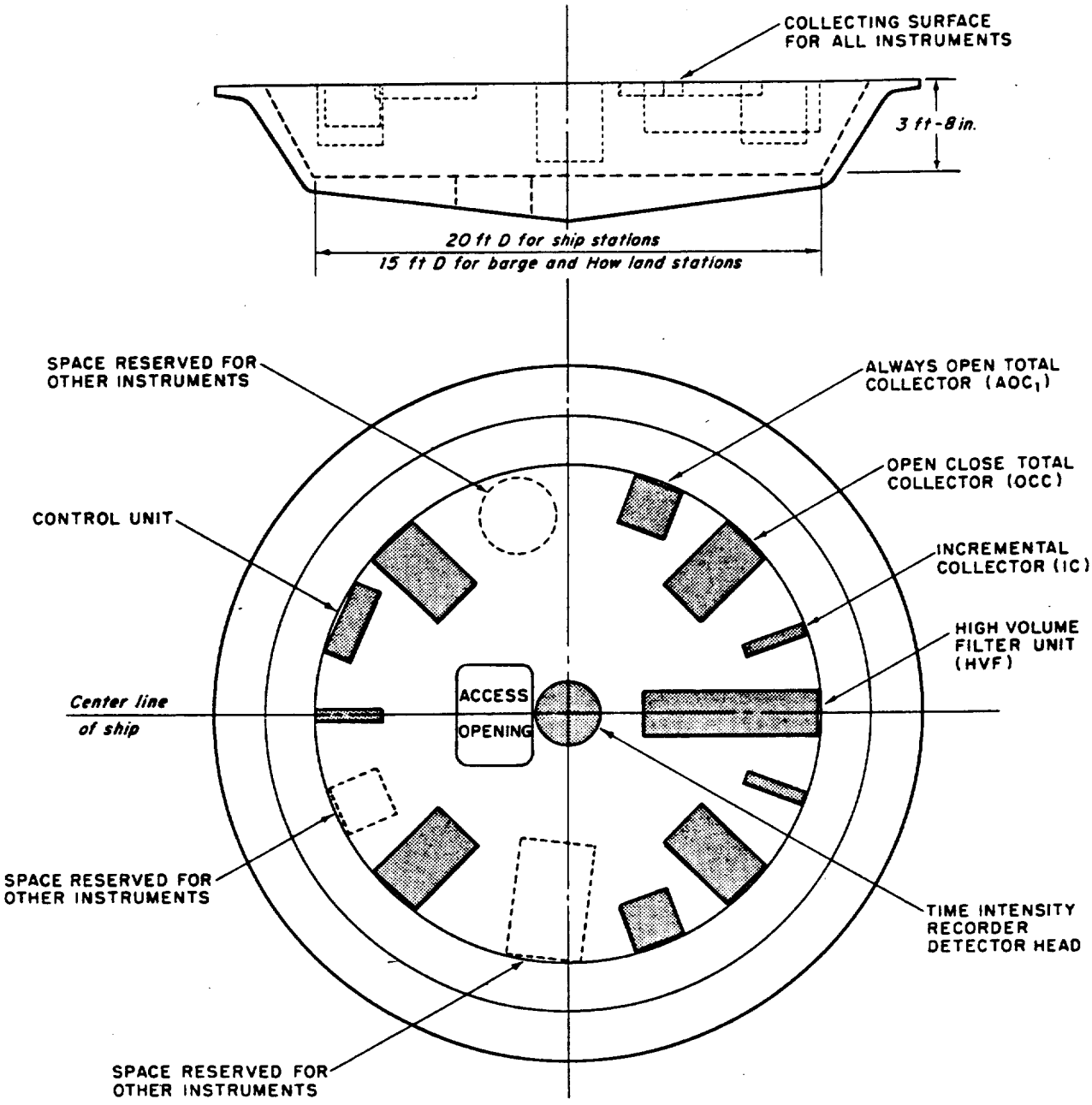

Figure 2.2 Plan and elevation of major sampling array.

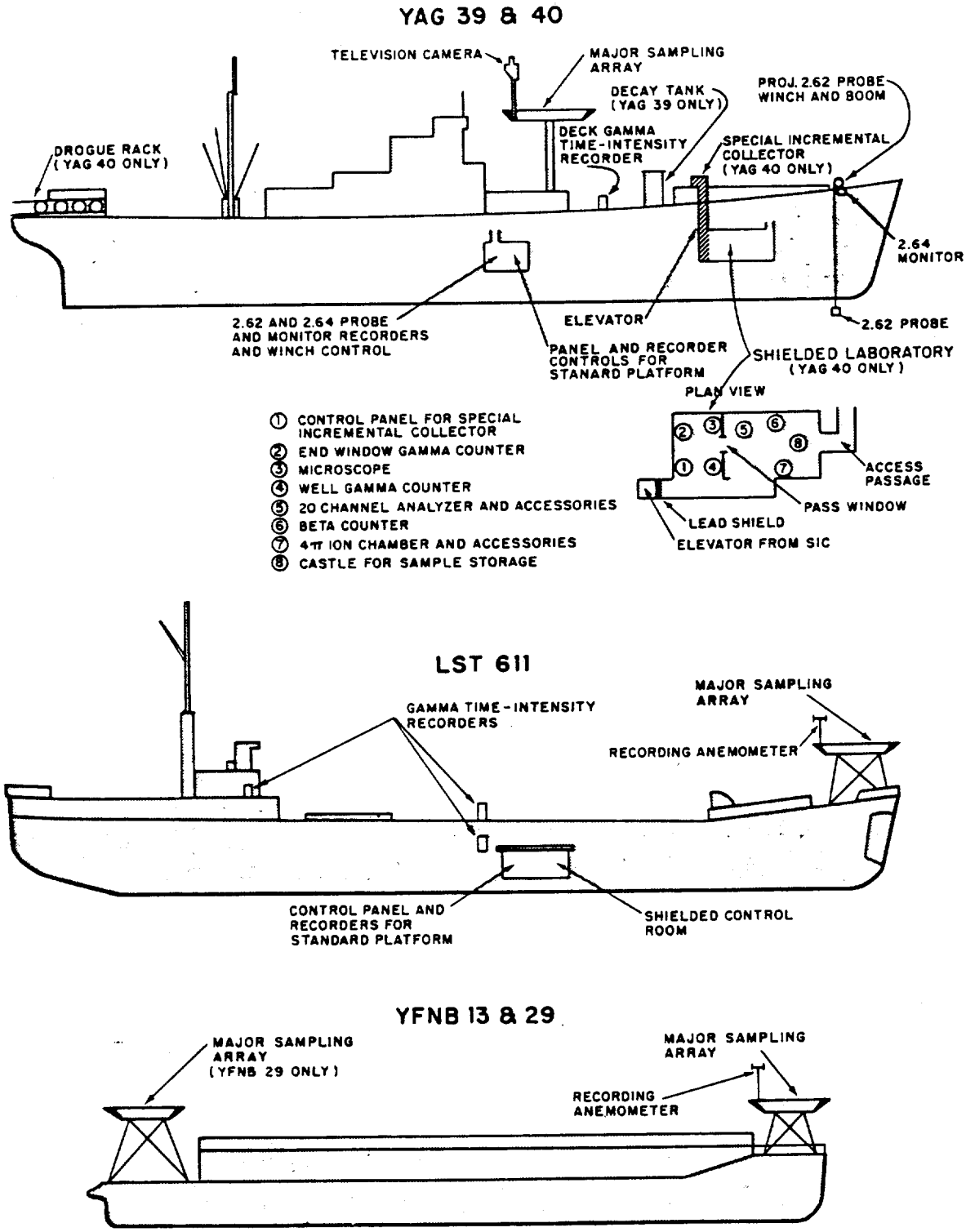

Figure 2.3 Ship and barge stations.

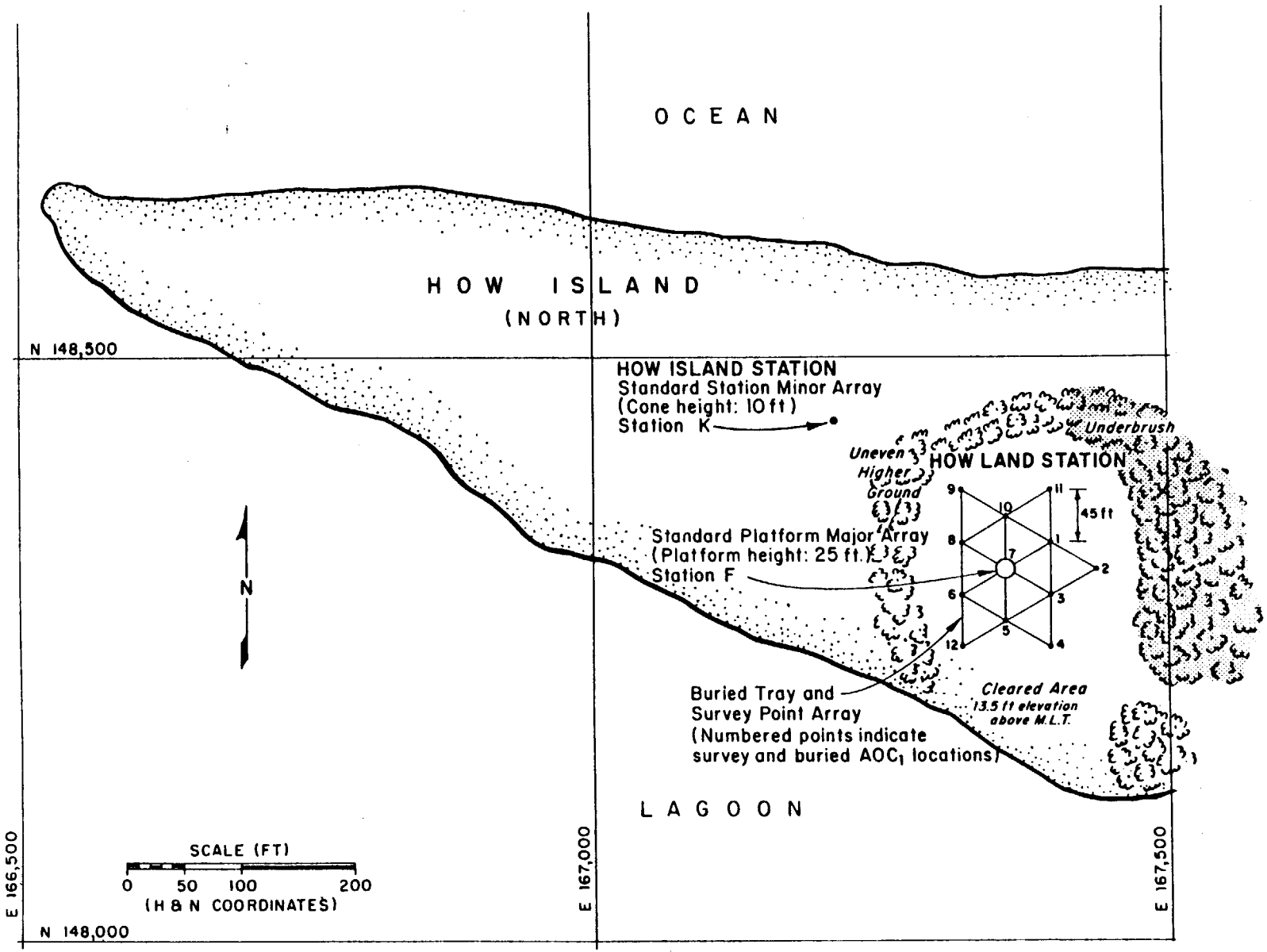

Figure 2.8 Location map and plan drawing of Site How.

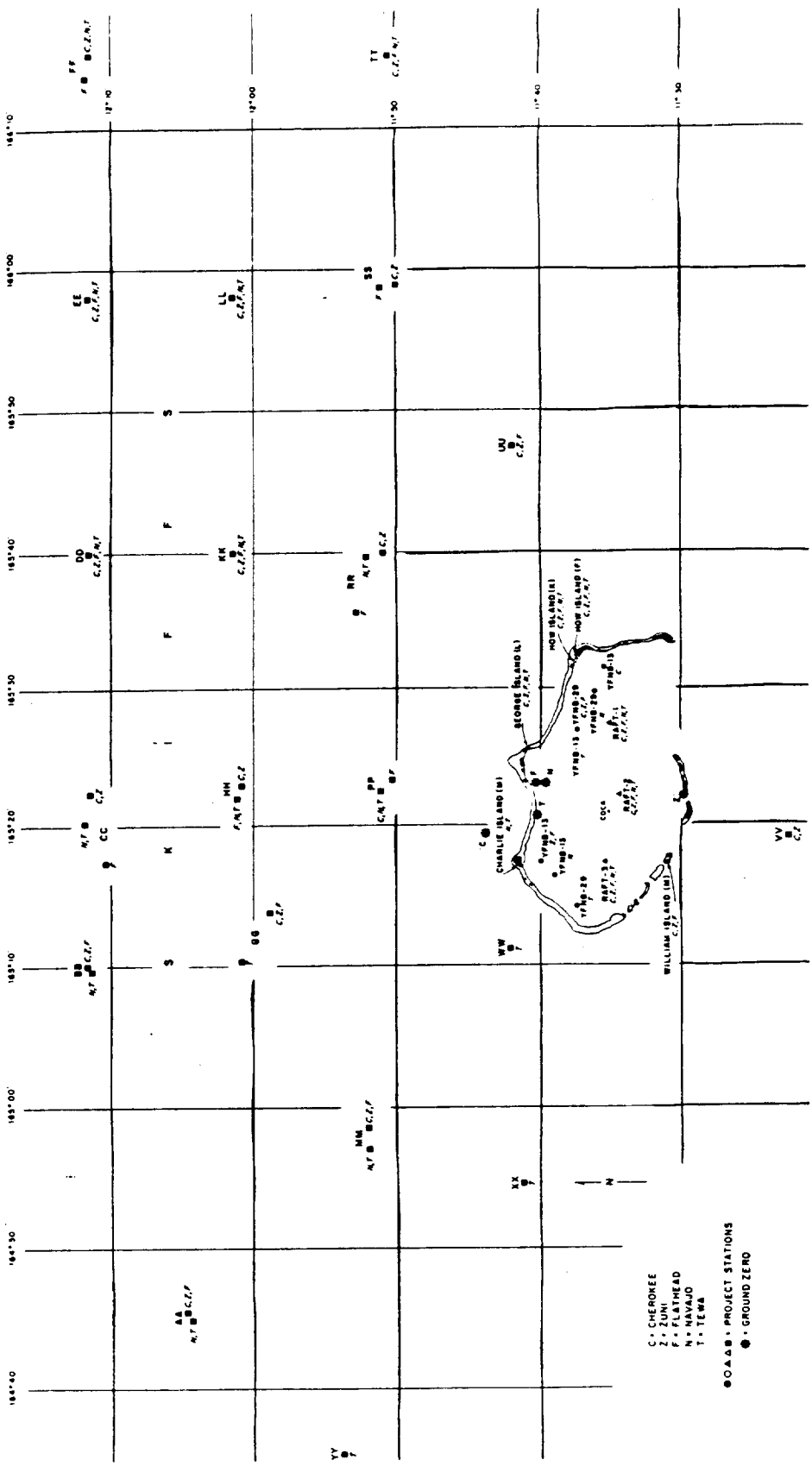

Figure 2.10 Station locations in the atoll area.

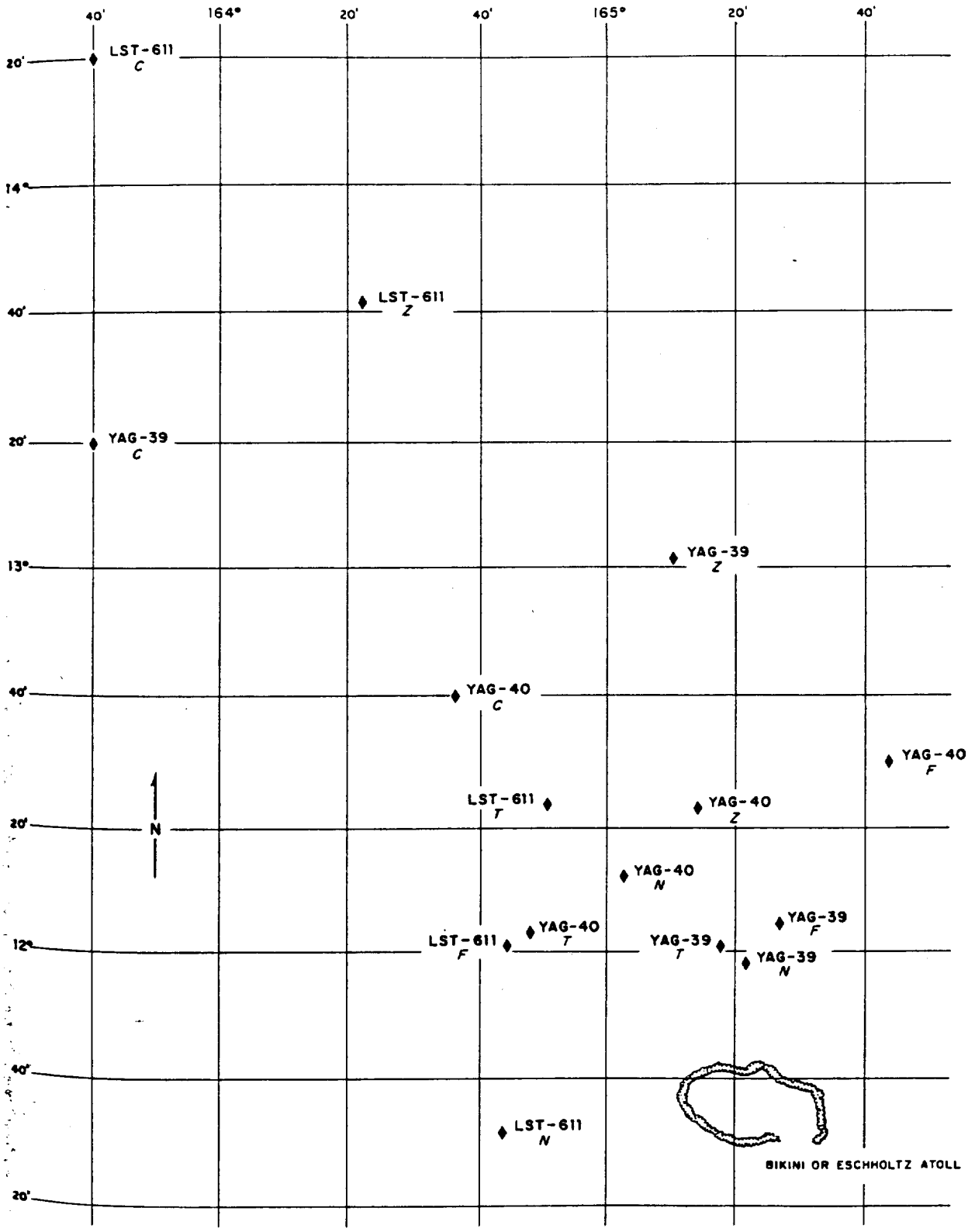

Figure 2.11 Ship locations at times of peak activity.

TABLE 3.1 TIMES OF ARRIVAL, PEAK ACTIVITY, AND CESSATION AT MAJOR STATIONS

Time of arrival (t_a) indicates the earliest reliable arrival time of fallout as determined from the incremental collector and gamma time-intensity recorder results. Time of peak activity (t_p) indicates the time of peak ionization rate (in parentheses) and the times during which the ionization rate was within 10 percent of the peak rate. I_p refers to the peak ionization rate. Time of cessation (t_c) indicates, first, the time by which 95 percent of the fallout had been deposited and, next, the extrapolated time of cessation.

Shot	Station	t_a	t_p			I_p	t_c
		TSD, hr	TSD, hr			r/hr	TSD, hr
Flathead	YAG 40 (A, B)	8.0	12	(17.0)	20	0.259	22 to 23
	YAG 39 (C)	4.5	10	(11.0)	13	0.141	13 to 15
	LST 611 (D)	6.6	9.0	(9.1)	9.2	0.098	20 to 25
	YFNB 13 (E)	0.35	1.1	(1.3)	1.5 *	21.8 *	2.0 to †
	YFNB 29 (G, H)	0.62	1.2	(1.52)	1.9	0.98	1.5 to 9.0
	How Island (F)	‡		‡		‡	‡
Navajo	YAG 40 (A, B)	6.0	11	(12.3)	13	0.129	16 to 20
	YAG 39 (C)	2.3	5.9	(6.0)	6.2	1.49	15 to 16
	LST 611 (D)	3.0	5.6	(6.1)	6.7	0.043	13 to 18
	YFNB 13 (E)	0.20	0.58	(0.63)	0.73	8.5	1.9 to 9.0 §
	YFNB 29 (G, H)	0.68	1.2	(1.33)	1.9	0.116	3.2 to 14 §
	How Island (F)	0.75		¶		¶	4.5 to 7.0 §
Zuni	YAG 40 (A, B)	3.4	6.2	(6.7)	7.7	7.6	7.4 to 13
	YAG 39 (C)	12	20	(25)	33	0.038	29 to 33
	LST 611 (D)	‡		‡		‡	‡
	YFNB 13 (E)	0.33	0.97	(1.25)	1.6 *	6 *	1.9 to 9.3
	YFNB 29 (G, H)	0.32	0.70	(0.82)	1.2	9.6	2.4 to 3.3
	How Island (F)	0.38	0.98	(1.05)	1.4	2.9	1.9 to 2.6
Tewa	YAG 40 (A, B)	4.4	6.2	(7.2)	7.6	7.43	8.5 to 16
	YAG 39 (C)	2.0	4.4	(5.0)	5.7	20.2	5.3 to 16
	LST 611 (D)	7.0	13	(13.6)	15	0.256	14 to 18
	YFNB 13 (E)	0.25	1.8	(1.9)	3.0	2.5	7.0 to 16
	YFNB 29 (G, H)	0.23	1.4	(1.7)	2.8 *	40 *	4.3 to 16
	How Island (F)	1.6	2.5	(2.9)	3.4	2.5	3.3 to 9.0

* Estimated value; gamma time-intensity recorder saturated.
† No determination possible; incremental collector failed.
‡ No fallout occurred.
§ Minimum value.
¶ Instrument failed.

IN THE ATOLL AREA

Time of arrival (t_a) indicates the arrival time of fallout as determined from the time of arrival detector results.

Station	Shot Flathead t_a	Shot Navajo t_a	Shot Zuni t_a	Shot Tewa t_a
	TSD, hr	TSD, hr	TSD, hr	TSD, hr
YFNB 13 (E)	*	*	†	*
YFNB 29 (G)	0.77	*	0.40	*
YFNB 29 (H)	0.68	*	0.40	*
How Island (F)	‡	*	0.35	*
How Island (K)	‡	*	0.40 §	*
George Island (L)	0.02 †	†	0.33	†
Charlie Island (M)	—	†	—	†
William Island (M)	‡	—	0.22	—
Raft-1 (P)	‡	‡	0.33	†
Raft-2 (R)	†	0.73	†	†
Raft-3 (S)	0.5	0.05 †	0.23	0.48
Skiff-AA	9.1 ¶	9.4	*	5.0
Skiff-BB	†	†	3.8 §	†
Skiff-CC	4.7	‡	*	4.2
Skiff-DD	‡	‡	*	‡
Skiff-EE	‡	‡	3.0 §	‡
Skiff-FF	‡	‡	†	‡
Skiff-GG	*	*	2.0 §	2.9 §
Skiff-HH	†	†	†	2.2
Skiff-KK	‡	†	*	‡
Skiff-LL	‡	‡	†	‡
Skiff-MM	*	4.3	2.9	2.0
Skiff-PP	†	1.4	*	†
Skiff-RR	4.1	†	1.7	†
Skiff-SS	10.6	—	†	—
Skiff-TT	‡	‡	†	‡
Skiff-UU	‡	—	†	—
Skiff-VV	—	—	*	—
Skiff-WW	—	—	—	†
Skiff-XX	—	—	—	1.2 §
Skiff-YY	—	—	—	†

* Skiff or instrument lost, or no instrument present.
† Instrument malfunctioned or may have malfunctioned.
‡ Activity level insufficient to trigger instrument; no fallout or only light fallout occurred.
§ Estimated value; clock reading corrected by ± an integral number of days.
¶ Instrument may have triggered at peak; low arrival rate.

TABLE 3.3 PENETRATION RATES DERIVED FROM EQUIVALENT-DEPTH DETERMINATIONS

Shot	Station	Number of Points	Time Studied From	Time Studied To	Rate	± Limits 95 pct Confidence
			TSD, hr		m/hr	m/hr
Flathead	YAG 39	10	8.3	12.8	3.0	2.5
Navajo	YAG 39	10	7.4	18.6	2.6	0.2
Navajo	YAG 40	4	10.0	13.0	4.0	2.1
Tewa	YAG 39	26	5.1	14.8	3.0	0.7
Tewa	YAG 40	5	5.2	8.1	4.0	2.9

TABLE 3.4 DEPTHS AT WHICH PENETRATION CEASED FROM EQUIVALENT-DEPTH DETERMINATIONS

Shot	Station	Number of Points	Time Studied From	Time Studied To	Depth	± Limits 95 pct Confidence	Estimated Thermocline Depth *
			TSD, hr		meters	meters	meters
Navajo	YAG 39	13	30.9	40.1	62	15	40 to 60
Tewa	YAG 39	17	15.3	20.5	49	10	40 to 60
			31.8	34.8			

* See Reference 15.

TABLE 3.5 MAXIMUM PENETRATION RATES OBSERVED

Shot	Station	Number of Points	Time Studied From	Time Studied To	Rate	± Limits 95 pct Confidence
			TSD, hr		m/hr	m/hr
Zuni	YAG 39	3	15.2	16.8	~30	—
		9	17.8	29.8	2.4	0.9
Navajo	YAG 39	5	3.1	5.2	23.0	9.8
Tewa	YAG 39	2	3.8	4.1	~300	—

TABLE 3.6 EXPONENT VALUES FOR PROBE DECAY MEASUREMENTS

The tabulated numbers are values of n in the expression: $A = A_0 (t/t_0)^n$, where A indicates the activity at a reference time, t, and A_0 the activity at the time of observation, t_0.

Shot	Exponent Values	
	Project 2.63	Project 2.62a
Zuni	0.90	1.13
Flathead	0.90	1.05
Navajo	1.39	1.39
Tewa	*	1.34

* Instrument malfunctioned.

TABLE 3.9 RADIOCHEMICAL PROPERTIES OF ALTERED AND UNALTERED PARTICLES, SHOT ZUNI

Quantity	Time	Altered Particles		Unaltered Particles	
		Number of Samples	Value	Number of Samples	Value
	TSD, hr				
fissions/gm ($\times 10^{14}$)	—	6	3.8 ± 3.1	9	0.090 ± 0.12
fissions/gm ($\times 10^{14}$) *	—	14	4.2 ± 2.7	24	0.033 ± 0.035
(counts/min)/10^4 fissions	71	4	0.34 ± 0.06	4	0.53 ± 0.19
(counts/min)/10^4 fissions	105	3	0.35 ± 0.08	7	1.1 ± 0.4
(counts/min)/10^4 fissions	239	1	0.054	1	0.12
(counts/min)/10^4 fissions	532	2	0.013	1	0.024
ma/10^4 fissions ($\times 10^{-17}$)	71	4	30 ± 5	4	59 ± 24
ma/10^4 fissions ($\times 10^{-17}$)	105	3	24 ± 7	7	109 ± 31
ma/10^4 fissions ($\times 10^{-17}$)	239	1	3.4	1	20
ma/10^4 fissions ($\times 10^{-17}$)	481	2	1.7	1	5.1
(counts/min)/ma ($\times 10^{14}$)	71	5	11 ± 1	4	9.3 ± 2.0
(counts/min)/ma ($\times 10^{14}$)	105	4	14 ± 3	13	8.6 ± 1.5
(counts/min)/ma ($\times 10^{14}$)	239	10	16 ± 2	6	8.2 ± 1.3

* Calculated from activity ratios on the basis of particles analyzed for total fissions.

TABLE 3.10 ACTIVITY RATIOS FOR PARTICLES FROM SHOTS ZUNI AND TEWA

Activity Ratio	Shot Zuni				Shot Tewa	
	Altered Particles		Unaltered Particles		All Particles	
	Value	Time	Value	Time	Value	Time
		TSD, hr		TSD, hr		TSD, hr
(counts/min)/ma ($\times 10^{14}$)	14. ± 3.	105	8.6 ± 1.5	105	11. ± 6.	96
	16. ± 2.	239	8.2 ± 1.3	239		
(counts/min)/10^4 fissions	0.35 ± 0.08	105	1.1 ± 0.4	105	0.38 ± 0.12	97
	0.054	239	0.12	239	0.18 ± 0.02	172
ma/10^4 fissions ($\times 10^{-17}$)	24. ± 7.	105	109. ± 31.	105	37. ± 15.	97
	3.4	239	20.	239		

TABLE 3.11 DISTRIBUTION OF ACTIVITY OF YAG 40 TEWA PARTICLES WITH SIZE AND TYPE

Size Group	Percent of Composite Total Activity	Percent of Size Group Activity		
		Irregular	Spheroidal	Agglomerated
microns				
16 to 33	<0.1	23.4	76.6	0.0
34 to 66	2.2	88.1	5.0	6.9
67 to 99	6.0	46.4	37.5	16.0
100 to 132	11.6	68.6	6.7	24.6
133 to 165	18.2	43.4	5.7	50.9
166 to 198	18.9	49.3	1.9	48.8
199 to 231	8.1	58.0	0.0	41.9
232 to 264	9.9	14.7	0.0	85.3
265 to 297	7.0	14.6	0.1	85.3
298 to 330	11.5	18.5	0.0	81.4
331 to 363	0.7	—	—	100.0
364 to 396	1.7	0.0	2.2	97.7
397 to 429	—	—	—	—
430 to 462	0.6	23.8	76.2	0.0
463 to 495	—	—	—	—
496 to 528	3.4	100.0	0.0	0.0

TABLE 3.16 SURFACE DENSITY OF FALLOUT COMPONENTS IN TERMS OF ORIGINAL COMPOSITION

Shot	Collector	Weight, mg/ft²		
		Coral	Sea Water	Total
Flathead	YAG 40-B-19 FL	14.0 ± 1.0	195.2 ± 16.2	209.2 ± 16.2
	LST 611-D-51 FL	0.0 ± 1.0	89.2 ± 16.2	89.2 ± 16.2
	YFNB 13-E-56 FL	1.6 ± 1.0	6,155.0 ± 31.3	6,156.7 ± 31.3
	How F-67 FL	0.0 ± 2.57	32.6 ± 17.7	32.6 ± 17.9
	YFNB 29-H-81 FL	5.4 ± 1.0	564.2 ± 31.3	569.5 ± 31.3
Navajo	YAG 40-B-19 NA	4.3 ± 1.0	646.8 ± 31.3	651.1 ± 31.3
	YAG 39-C-36 NA	3.2 ± 1.0	1,415.4 ± 31.3	1,418.6 ± 31.3
	LST 611-D-51 NA	13.0 ± 1.0	1,299.5 ± 31.3	1,312.5 ± 31.3
	YFNB 13-E-54 NA	51.6 ± 1.0	5,129.8 ± 31.3	5,181.5 ± 31.3
	How F-67 NA	12.0 ± 2.6	561.3 ± 35.4	573.3 ± 35.4
	YFNB 29-H-81 NA	24.0 ± 1.0	0.0 ± 31.3	24.0 ± 31.3
Zuni	YAG 40-B-17 ZU	1,810.1 ± 1.0	116.8 ± 16.2	1,927.0 ± 16.2
	YAG 40-B-19 ZU	522.6 ± 1.0	166.1 ± 31.3	688.7 ± 31.3
	YAG 39-C-23 ZU	17.8 ± 1.0	88.6 ± 16.2	106.4 ± 16.2
	YAG 39-C-36 ZU	19.2 ± 1.0	55.0 ± 31.3	74.2 ± 31.3
	YFNB 13-E-56 ZU	1,574.8 ± 1.0	1,121.6 ± 16.2	2,696.4 ± 16.2
	YFNB 13-E-58 ZU	797.9 ± 1.0	583.9 ± 16.2	1,381.8 ± 16.2
	How F-63 ZU	989.5 ± 2.6	86.7 ± 0.3	1,076.2 ± 2.6
	How F-67 ZU	592.3 ± 2.6	221.8 ± 17.7	814.2 ± 17.9
	YFNB 29-H-79 ZU	2,912.9 ± 1.0	561.0 ± 16.2	3,473.8 ± 16.2
	YFNB 29-H-81 ZU	2,788.4 ± 1.0	1,274.2 ± 16.2	4,062.6 ± 16.2
Tewa	YAG 40-B-19 TE	661.7 ± 1.0	273.6 ± 16.2	935.3 ± 16.2
	YAG 39-C-36 TE	1,726.8 ± 1.0	517.5 ± 16.2	2,244.4 ± 16.2
	LST 611-D-51 TE	62.9 ± 1.0	0.0 ± 31.3	62.9 ± 31.3
	YFNB 13-E-56 TE	54.1 ± 1.0	199.0 ± 16.2	253.2 ± 16.2
	How F-67 TE	15.0 ± 2.4	13.6 ± 0.2	28.6 ± 2.4
	YFNB 29-H-81 TE	4,533.1 ± 1.0	0.0 ± 31.3	4,533.1 ± 31.3

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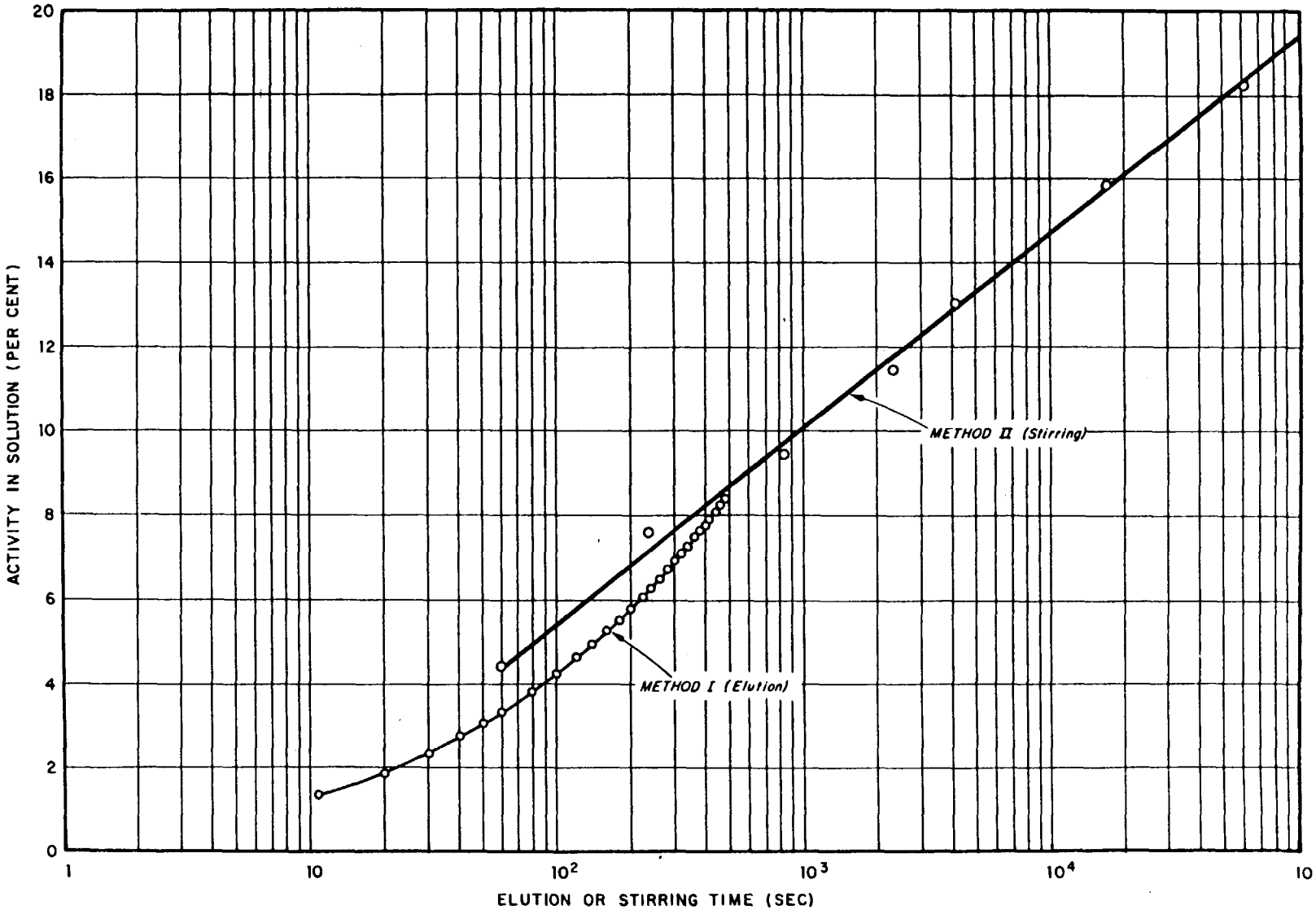

Figure 3.11 Solubility of solid fallout particles.

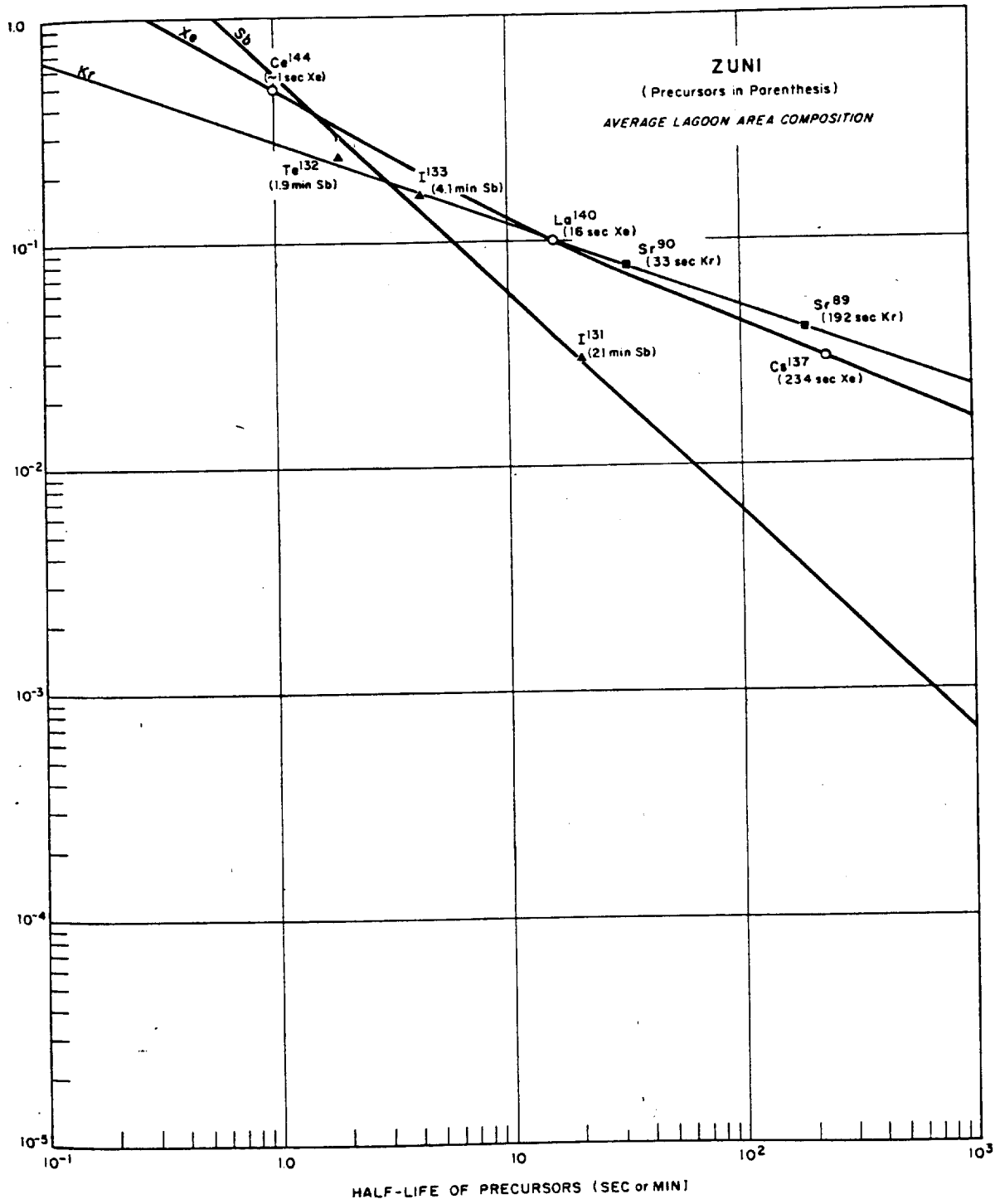

Figure 3.32 Radionuclide fractionation of xenon, krypton, and antimony products, Shot Zuni.

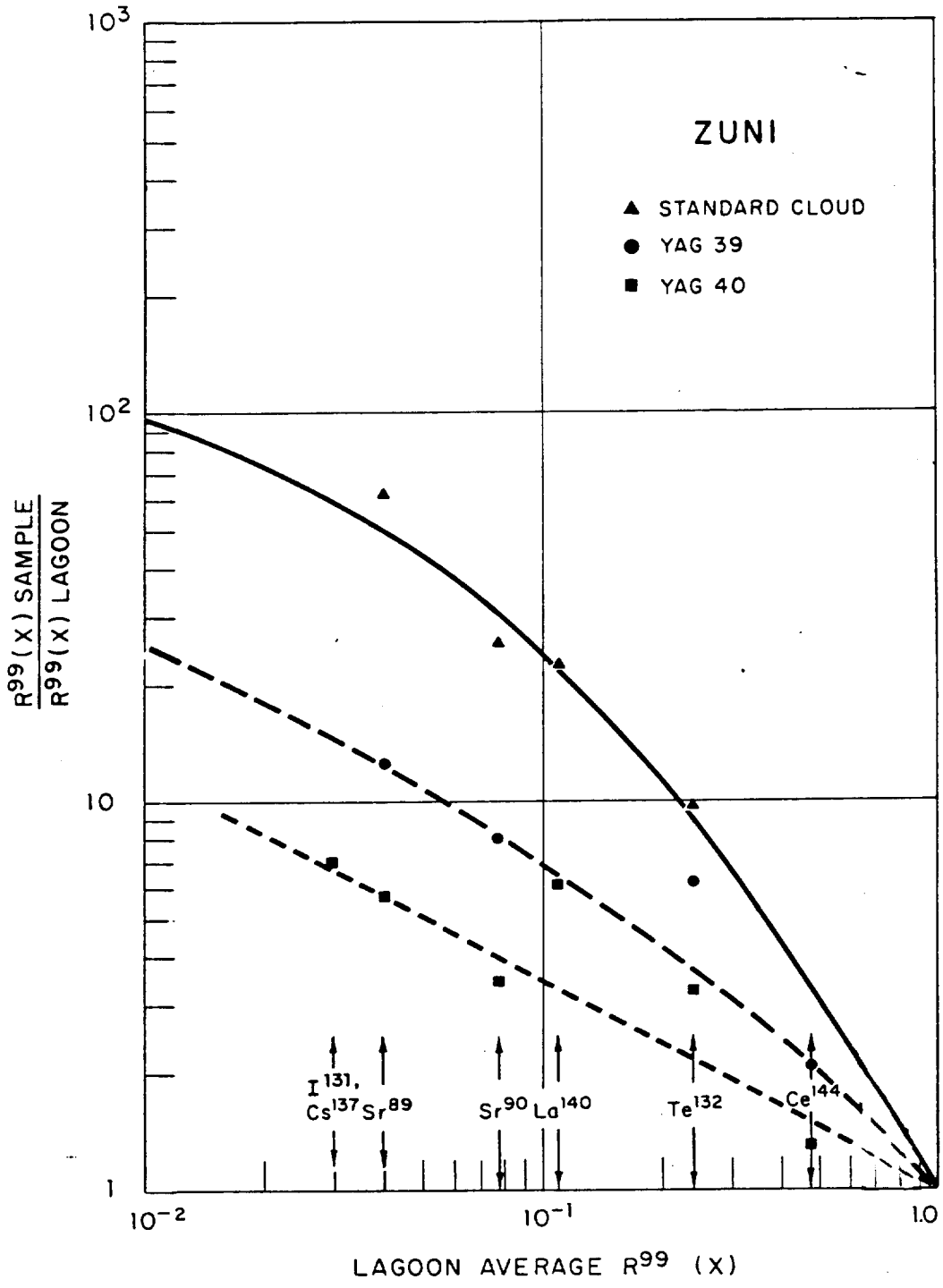

Figure 3.33 R-value relationships for several compositions, Shot Zuni.

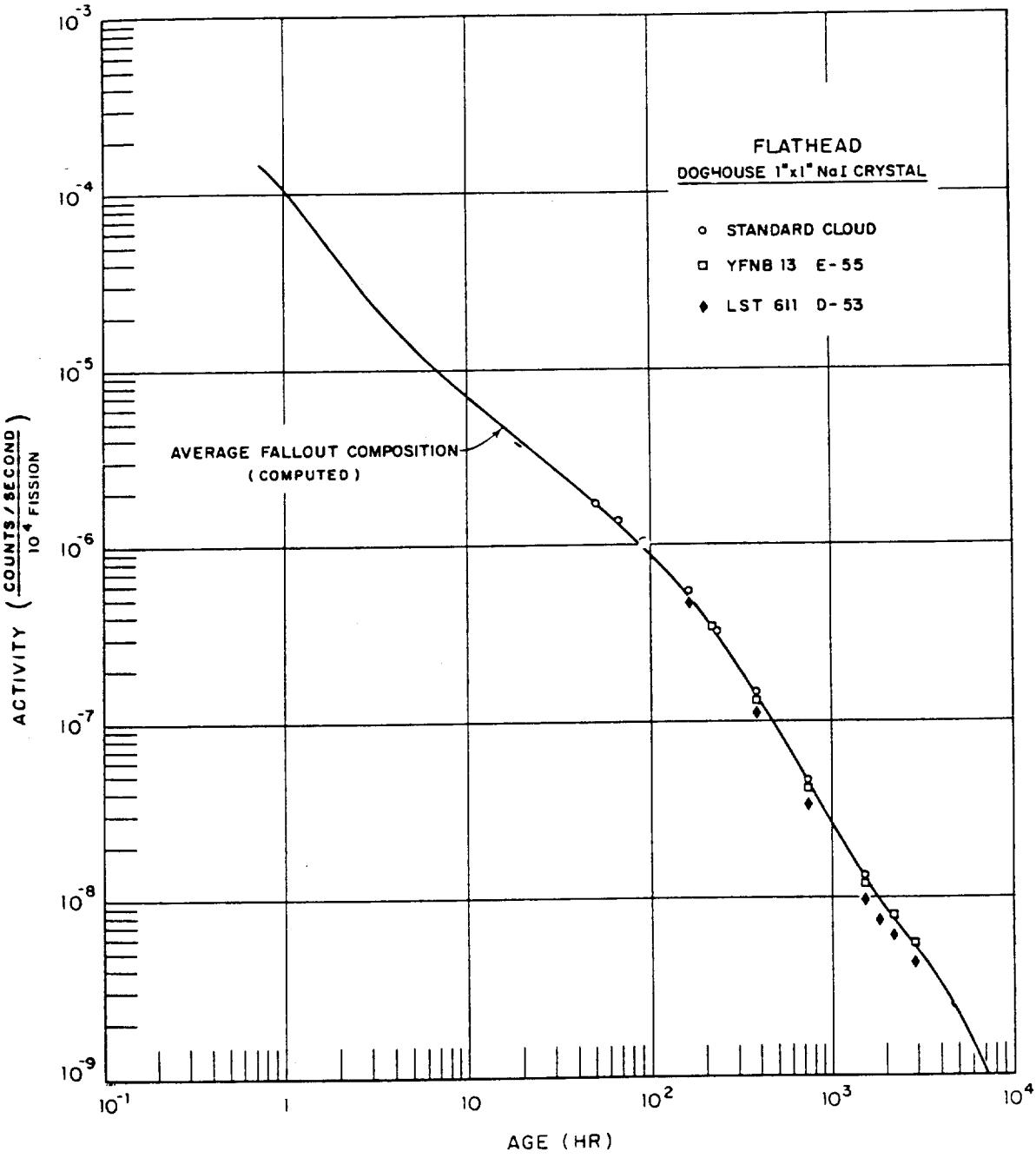

Figure 3.34 Photon-decay rate by doghouse counter, Shot Flathead.

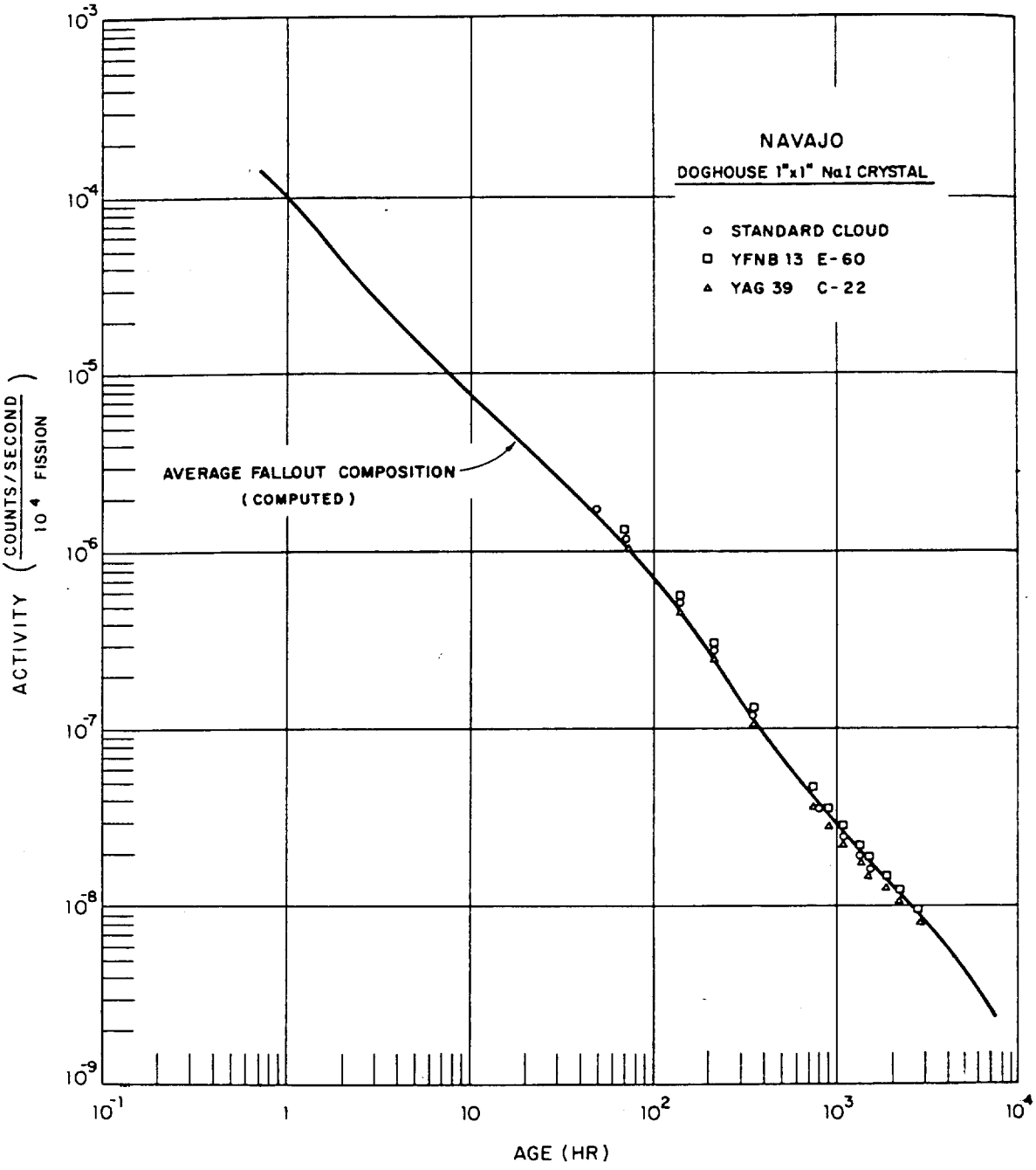

Figure 3.35 Photon-decay rate by doghouse counter, Shot Navajo.

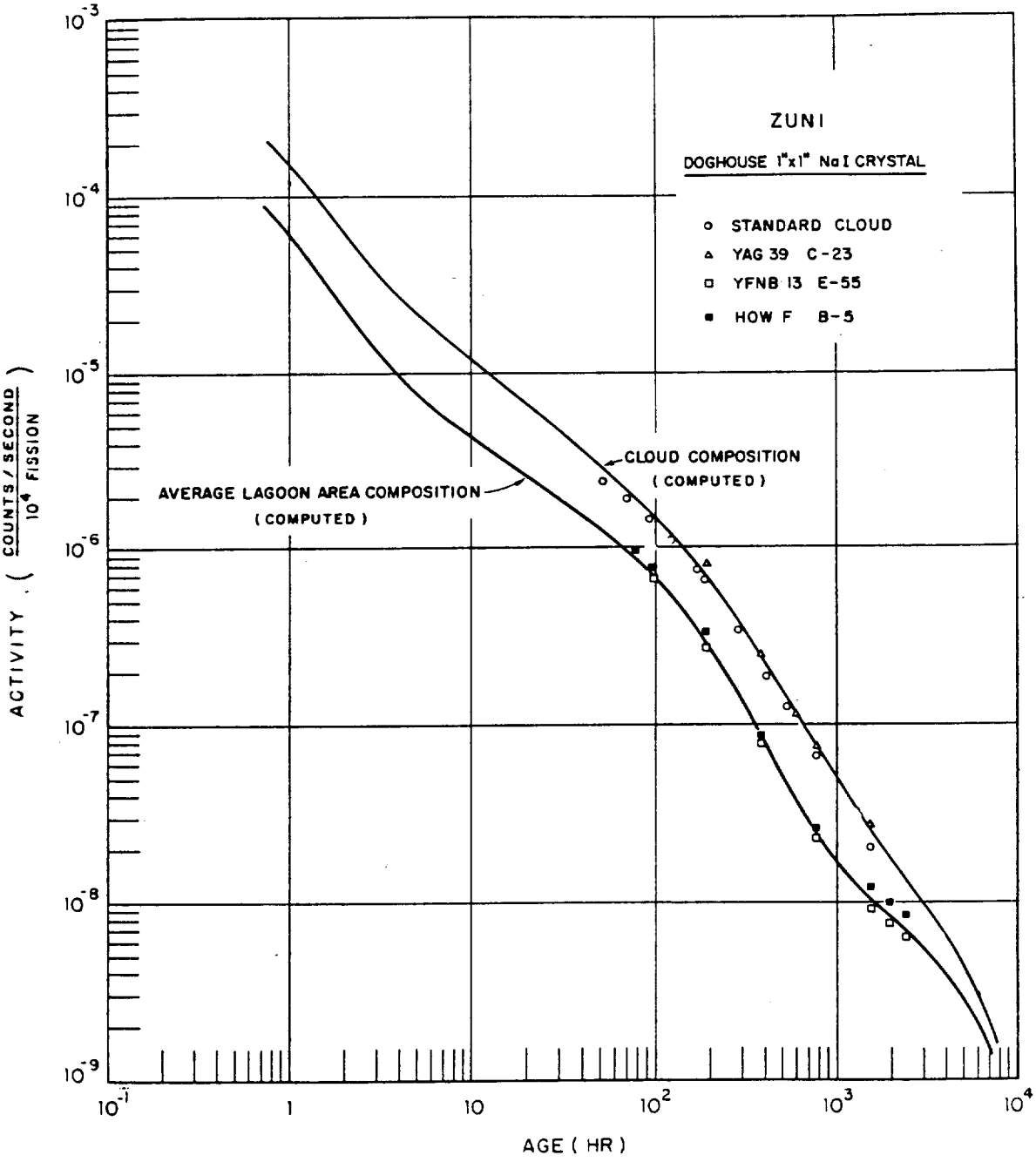

Figure 3.36 Photon-decay rate by doghouse counter, Shot Zuni.

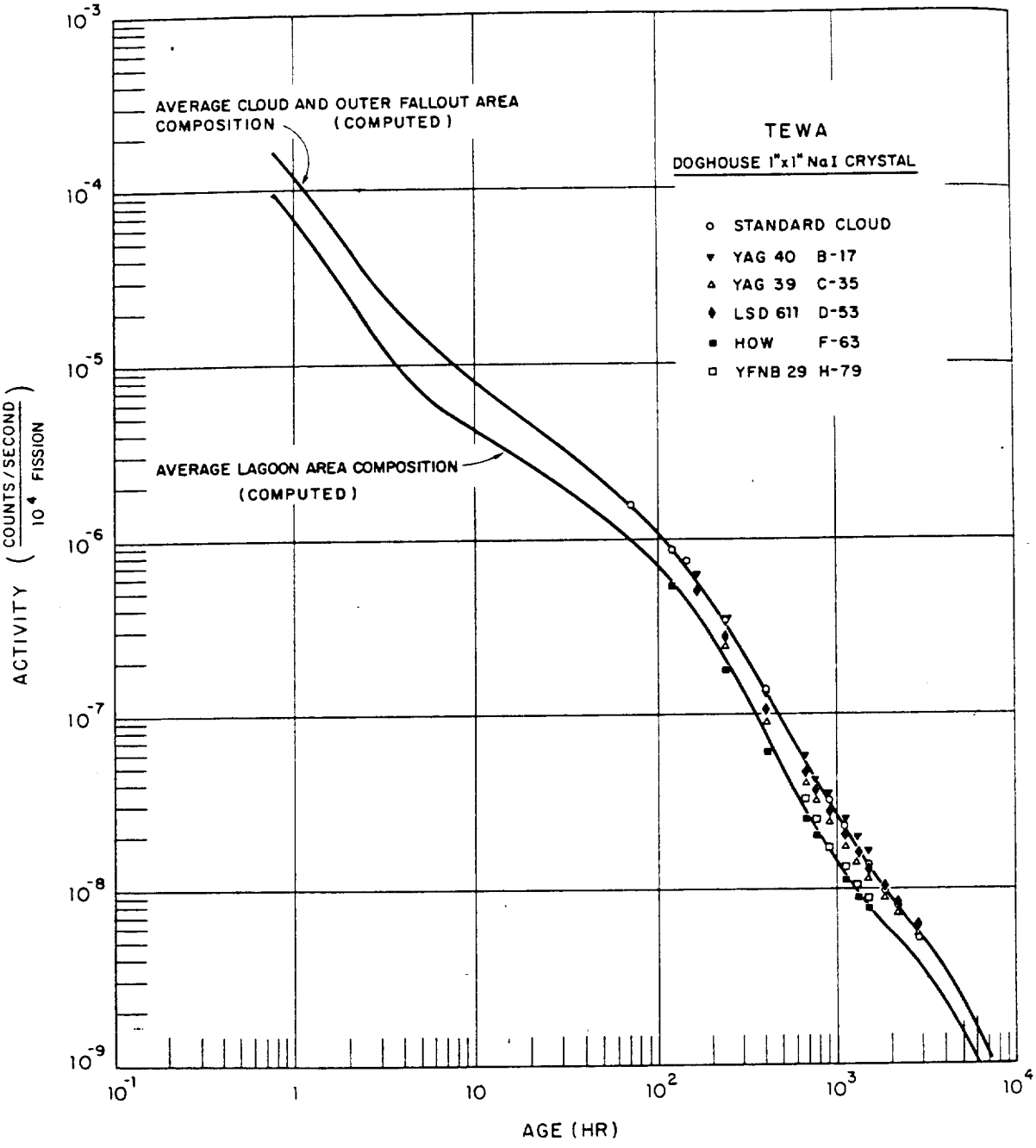

Figure 3.37 Photon-decay rate by doghouse counter, Shot Tewa.

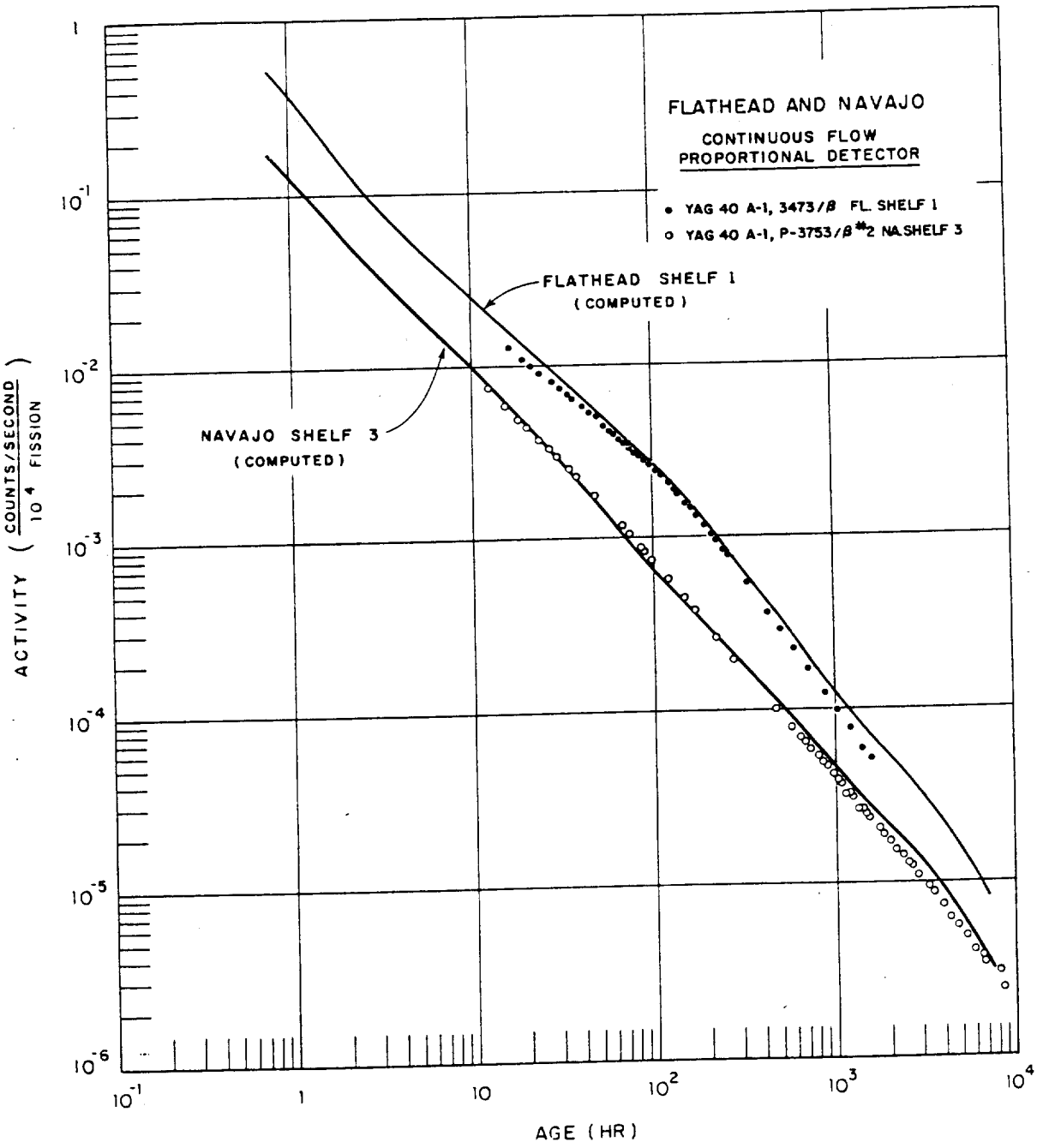

Figure 3.38 Beta-decay rates, Shots Flathead and Navajo.

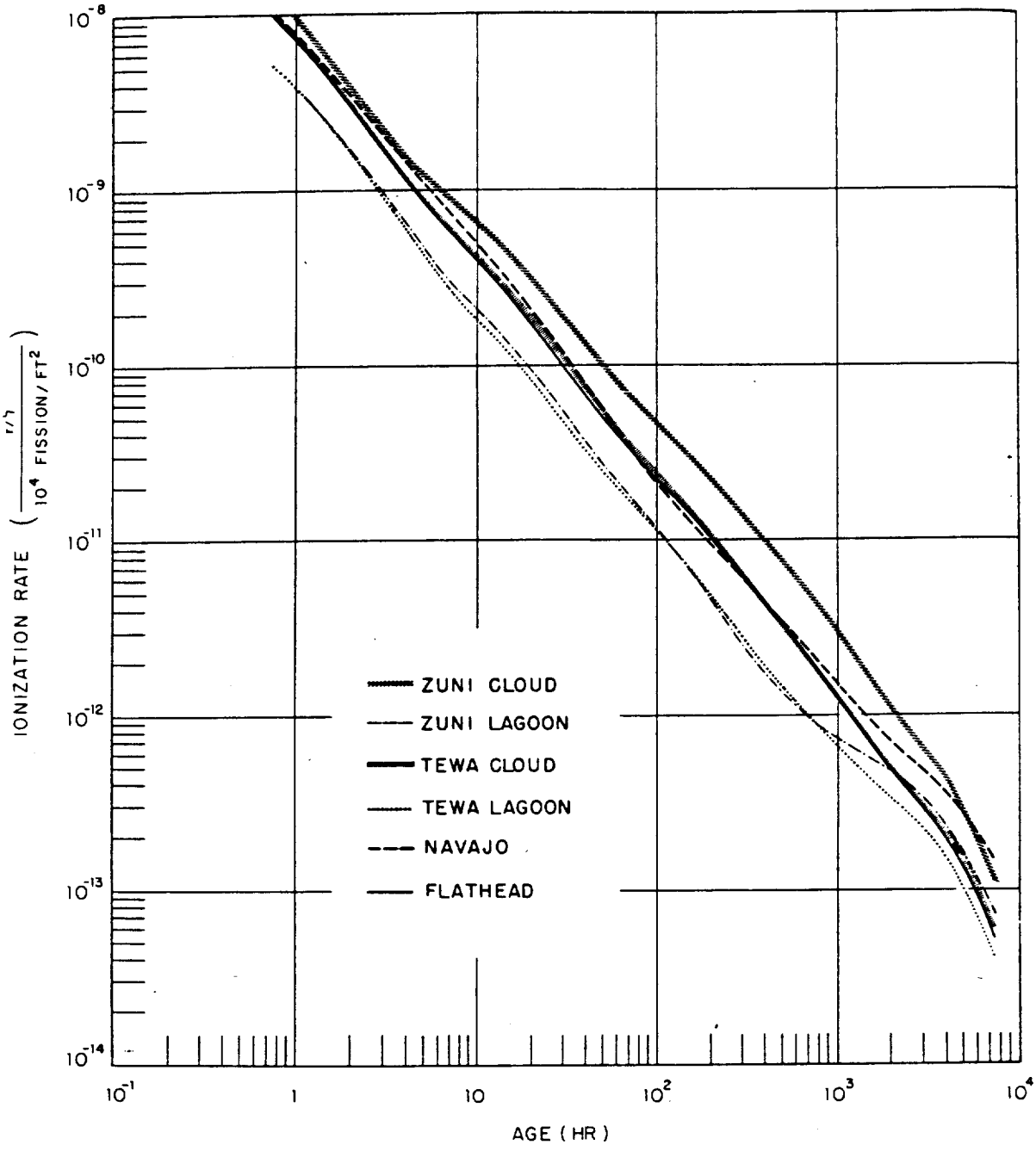

Figure 3.39 Computed ionization-decay rates, Shots Flathead, Navajo, Zuni, and Tewa.

TABLE 4.3 COMPARISON OF PREDICTED AND OBSERVED TIMES OF ARRIVAL AND MAXIMUM PARTICLE-SIZE VARIATION WITH TIME

Shot *	Station	Time of Arrival		Maximum Particle Size (microns) at					
				Time of Arrival		Time of Peak Activity †		Time of Cessation †	
		Predicted	Observed †	Predicted	Observed ‡	Predicted	Observed ‡	Predicted	Observed ‡
		TSD, hr							
Flathead	YFNB 13	§	0.35	—	—	—	—	—	—
	How I	§	§	—	—	—	—	—	—
	YAG 39	3	4.5	200	—	¶	—	¶	—
	YAG 40	9	8.0	125	—	70	120	<70	—
	LST 611	6	6.6	120	112	¶	—	¶	—
Navajo	YFNB 13	<0.5	0.20	>1,000	—	>1,000	—	—	—
	How I	1.5	0.75	500	—	500	—	¶	—
	YAG 39	2	2.3	500	—	180	—	~100	—
	YAG 40	4	6.0	200	—	130	96	~75	84
	LST 611	3	3.0	300	—	180	166	—	—
Zuni	YFNB 13	<1	0.33	500	1,400	500	695	500	545
	How I	<1.5	0.38	>500	—	>500	365	>500	—
	YAG 40	~6	3.4	§	325	150	300	125	245
	YAG 39	9	12	100	—	¶	—	¶	—
	LST 611	§	§	—	—	—	—	—	—
Tewa	YFNB 13	<0.5	0.25	2,000	285	350	—	¶	—
	YFNB 29	<1	0.23	800	1,100	500	1,000	¶	—
	How I	1	1.6	1,000	205	250	285	¶	—
	YAG 39	2	2.0	500	—	180	395	¶	—
	YAG 40	3.5	4.4	200	—	100	285	90	255
	LST 611	7	7.0	150	285	80	205	—	—

* The following cloud dimensions were used in the calculations:

	Shot Flathead	Shot Navajo	Shot Zuni	Shot Tewa
Top, × 1,000 ft	65	85	80	90
Base, × 1,000 ft	35	50	50	50
Diameter, naut mi	6	40	40	60

† Table 3.1.
‡ Section 3.2.4 and Tables B.3 and B.5.
§ No fallout, or no fallout at reference time.
¶ Fallout completed by reference time.

TABLE 4.5 COMPARISON OF HOW ISLAND COLLECTIONS

Shot	Standard Platform	Buried Trays	AOC_2	Platform/Buried Trays
	weighted mean fissions/ft^2	weighted mean fissions/ft^2	fissions/ft^2	
Zuni	$2.07 \pm 0.47 \times 10^{14}$	$2.08 \pm 0.22 \times 10^{14}$	1.87×10^{14}	0.995 ± 0.249
Flathead	$6.14 \pm 2.72 \times 10^{10}$ *	†	2.16×10^{10}	—
Navajo	$1.49 \pm 0.17 \times 10^{12}$	$1.24 \pm 0.51 \times 10^{12}$	2.67×10^{11}	1.202 ± 0.512
Tewa	$2.61 \pm 0.49 \times 10^{13}$	$2.30 \pm 0.35 \times 10^{13}$	1.53×10^{13}	1.135 ± 0.274

* Mean of six total collectors.

† No activity resolvable from Zuni background.

TABLE 4.6 SURFACE DENSITY OF ACTIVITY DEPOSITED ON THE OCEAN

Shot	Station	Ocean, Probe Analysis		Decay Tank, YAG 39		OCC, Ship Platform	
		Method I	Method II	Method I	Method III	Weighted Mean	Maximum Extrapolation *
		fissions/ft^2		fissions/ft^2		fissions/ft^2	
Zuni	YAG 39	9×10^{12} †	—	8.3×10^{12}	—	$2.74 \pm 1.70 \times 10^{12}$	5.02×10^{12}
	YAG 40	1×10^{14} ‡	—	—	—	$3.67 \pm 0.95 \times 10^{14}$	—
Flathead	YAG 39	1.1×10^{13}	—	7.0×10^{12}	$6.96 \pm 2.89 \times 10^{12}$	$4.36 \pm 2.32 \times 10^{12}$	—
	YAG 40	3×10^{13}	—	—	—	$1.55 \pm 1.27 \times 10^{13}$	3.15×10^{13}
Navajo	YAG 39	1.6×10^{14}	—	5.2×10^{13}	$3.40 \pm 0.72 \times 10^{13}$	$1.54 \pm 0.41 \times 10^{13}$	—
	Horizon	—	$5.98 \pm 1.02 \times 10^{13}$ §	—	—	—	—
	YAG 40	4.4×10^{13}	—	—	—	$6.05 \pm 1.26 \times 10^{12}$	—
Tewa	YAG 39	2.2×10^{15} †	—	3.6×10^{15}	$2.75 \pm 0.88 \times 10^{15}$	$1.11 \pm 0.76 \times 10^{15}$	2.08×10^{15}
	Horizon	—	$3.00 \pm 0.77 \times 10^{15}$ ¶	—	—	—	—
	YAG 40	1.1×10^{15} †	—	—	—	$4.70 \pm 3.20 \times 10^{14}$	8.85×10^{14}

* For cases of essentially single-wind deposition.

† Not corrected for material possibly lost by settling below stirred layer.

‡ Considerable motion of ship during fallout period.

§ Average of profiles taken at Horizon stations 4, 4A, 5, 7, and 8 from 18.6 to 34.3 hours (Table B.33).

¶ Average of profiles taken at Horizon stations 2-5, 5A, 6, and 12 from 21.3 to 81.2 hours (Table B.33).

TABLE 4.9 GAMMA DOSAGE BY ESL FILM DOSIMETER AND INTEGRATED TIR MEASUREMENTS

Station	Shot Zuni			Shot Flathead			Shot Navajo			Shot Tewa		
	Film Dose	TIR Dose	Exposure Time	Film Dose	TIR Dose	Exposure Time	Film Dose	TIR Dose	Exposure Time	Film Dose	TIR Dose	Exposure Time
	r	r	to H+hr	r	r	to H+hr	r	r	to H+hr	r	r	to H+hr
YAG 40-B	30	19.8	28.2	2.5	1.7	33.6	1.77	0.8	32.8	41.6	31.0	32.6
YAG 39-C	0.2	0.2	34.6	0.05	0.5	26.1	10	4.6	50.3	68	67.0	51.3
LST 611-D	<0.05	0.0	62.0	1.7	1.3	51.6	0.81	0.3	26.6	3.62	3.4	31.7
YFNB 13-E	44	17.8 *	26.7	400	74.6 *	26.7	68.5	13.7	58.3	20.3	8.7	7.8
YFNB 29-G	20	23.6	6.9	7.5	3.7	5.7	1.64	0.2	6.5	310	158.0 *	51.1
YFNB 29-H	43	41.7	27.7	12	3.9	25.9	1.65	0.7	5.5	320	284.0 *	75.6
How F	19	6.7	11.1	0.22	0.0	6.3	1.82	†	6.7	4.5	0.8	8.3
How K	51	—	30.2	3.1	—	6.3	3.37	—	10.7	6.7	—	8.4
George L	260	—	32.7	230	—	31.7	150	—	32.5	†	—	†
Charlie M	—	—	—	—	—	—	107	—	32.7	†	—	†
William M	110	—	31.6	5.2	—	30.9	—	—	—	—	—	—
Raft 1	25	—	30.8	1.5	—	29.4	1.32	—	27.3	3.35	—	31.7
Raft 2	40	—	29.8	24	—	28.6	4.62	—	28.1	45.5	—	32.3
Raft 3	34	—	28.6	19	—	27.8	16.1	—	28.8	204	—	33
Skiff AA	17	—	52.1	25	—	24.2	13.2	—	59.9	45.5	—	63.25
Skiff BB	33	—	56.9	59	—	28.3	†	—	†	141	—	37.9
Skiff CC	20	—	72.9	9.4	—	30.6	5.2	—	53.2	42.5	—	36.6
Skiff DD	17	—	74.6	†	—	†	2.56	—	50.3	1.28	—	33.4
Skiff EE	2.3	—	171.9	0.6	—	48.4	1.45	—	48.8	9.87	—	31.7
Skiff FF	‡	—	‡	1.1	—	55.1	0.56	—	29.3	0.3	—	26.5
Skiff GG	10	—	59.3	‡	—	‡	—	—	—	295	—	60.1
Skiff HH	16	—	60.8	20	—	32.7	29.5	—	52.3	61	—	39.8
Skiff KK	6.8	—	75.7	2.0	—	51.4	6.3	—	33.0	0.62	—	34.7
Skiff LL	†	—	†	1.0	—	53.4	2.05	—	31.0	1.40	—	29.8
Skiff MM	1.8	—	50.1	‡	—	‡	†	—	†	410	—	61.5
Skiff PP	—	—	—	16	—	34.8	77	—	35.4	60	—	58.3
Skiff RR	2.4	—	77.1	2.0	—	60.8	11.7	—	33.8	0.6	—	41.9
Skiff SS	1.1	—	155.3	3.6	—	58.0	—	—	—	—	—	—
Skiff TT	1.2	—	168.7	1.2	—	56.4	1.09	—	27.8	0.3	—	28.0
Skiff UU	†	—	†	0.45	—	59.3	—	—	—	—	—	—
Skiff VV	†	—	†	—	—	—	—	—	—	—	—	—
Skiff WW	—	—	—	—	—	—	—	—	—	154	—	56.7
Skiff XX	—	—	—	—	—	—	—	—	—	2.05	—	54.6
Skiff YY	—	—	—	—	—	—	—	—	—	1.41	—	52.6

* Estimated value, TIR saturated. † Instrument malfunctioned or lost. ‡ Not instrumented.

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TABLE 4.10 PERCENT OF FILM DOSIMETER READING RECORDED BY TIR

Station	Shot Zuni	Shot Flathead	Shot Navajo	Shot Tewa
	pct	pct	pct	pct
YAG 40-B	66	68	45	75
YAG 39-C	100	~100	46	97
LST 611-D	*	76	37	94
YFNB 13-E	41 †	19 †	20	43
YFNB 29-G	~100 ‡	49	12	51 †
YFNB 29-H	97	32	42	89 †
How F	35 ‡	*	§	18

* No fallout occurred.
† TIR saturated.
‡ Dosimeter location varied from other shots.
§ Instrument malfunctioned.

TABLE 4.11 COMPARISON OF THEORETICAL DOGHOUSE ACTIVITY OF STANDARD-CLOUD SAMPLES BY GAMMA SPECTROMETRY AND RADIOCHEMISTRY

Time of Spectral Run	Observed Dog-house Activity	Computed Activity and Errors			
		Spectrometer	Error	Radiochemical	Error
H+hr	counts/min	counts/min	pct	counts/min	pct
Shot Zuni Standard Cloud, 9.84×10^{12} fissions					
53	142,500	95,300	−33.1	163,541	+14.8
117	70,000	47,450	−32.2	74,981	+7.11
242	26,700	20,640	−22.7	29,107	+9.01
454	9,500	7,516	−20.9	10,745	+13.1
790	3,700	3,790	+2.43	4,546	+22.9
1,295	1,550	1,973	+27.3	1,984	+28.0
Shot Flathead Standard Cloud, 2.79×10^{13} fissions					
96.5	171,000	142,090	−16.9	154,008	−9.93
195	72,000	51,490	−28.5	66,960	−7.00
262	45,000	29,850	−33.7	43,022	−4.39
334	30,500	22,760	−25.4	29,128	−4.49
435	19,300	14,920	−22.7	19,084	−1.11
718	8,200	6,778	−17.3	7,985	−2.62
1,031	4,400	3,341	−22.5	4,152	−5.63
1,558	2,130	2,243	+5.31	2,076	−2.53
Shot Navajo Standard Cloud, 3.46×10^{12} fissions					
51.5	34,000	27,470	−19.2	31,350	−7.79
69	25,500	20,724	−18.7	22,630	−11.3
141	11,000	9,432	−14.2	9,757	−11.3
191	7,000	7,411	+5.87	6,290	−10.1
315	3,050	2,834	−7.08	2,927	−4.03
645	980	958	−2.24	1,038	+5.92
Shot Tewa Standard Cloud, 4.71×10^{13} fissions					
71.5	442,000	244,930	−44.6	429,600	−2.81
93.5	337,000	194,170	−42.4	325,000	−3.56
117	262,000	157,890	−39.7	255,800	−2.37
165	169,000	134,910	−20.2	161,000	−4.73
240	97,000	74,780	−22.9	91,000	−6.19
334	54,000	38,770	−28.2	52,280	−3.19
429	34,500	25,200	−27.0	33,200	−3.77
579	20,200	14,770	−26.9	19,640	−2.77
766	12,400	10,860	−12.4	12,150	−2.02
1,269	5,200	5,660	+8.85	4,974	−4.35
1,511	3,850	4,550	+18.2	3,759	−2.36

TABLE 4.12 COMPARISON OF ACTIVITIES PER UNIT AREA COLLECTED BY THE HIGH VOLUME FILTER AND OTHER SAMPLING INSTRUMENTS

Shot	Designation and Exposure Period, H+hr					Fissions/ft^2 (Mo^{99})		
	HVF		IC		OCC and AOC_1	HVF (area = 0.06696 ft^2)	IC (area = 0.05584 ft^2)	OCC and AOC_1 (area = 2.60 ft^2)
Zuni	YAG 40-B-9	3.4 to 4.8				10.14×10^{13}		
	YAG 40-B-10	5.3				23.48		
	YAG 40-B-11	5.8				23.73		
	YAG 40-B-12	6.3				21.79		
	YAG 40-B-13	6.8				6.42		
	YAG 40-B-14	7.3				6.93		
	YAG 40-B-15	7.8				0.39		
	YAG 40-B-8	16.4				3.97		
	HVF to	16.4	YAG 40-B-7	to 15.6	To 16.3 and 28.2 *	9.68×10^{14}	6.06×10^{14}	$3.71 \pm 0.88 \times 10^{14}$
Flathead	YAG 40-B-8	to 26.4	YAG 40-B-7	to 19.9	To 26.4	2.03×10^{12}	3.87×10^{12}	$16.3 \pm 13.4 \times 10^{12}$
	YAG 39-C-25	to 26.1	YAG 39-C-20	to 18.2	To 23.8	1.57×10^{12} †	4.85×10^{12}	$4.37 \pm 2.37 \times 10^{12}$
Navajo	YAG 40-B-8	to 19.1	YAG 40-B-7	to 15.5	To 8.7 and 19.7 *	3.72×10^{12}	3.70×10^{12}	$6.08 \pm 1.26 \times 10^{12}$
	YAG 39-C-25	to cessation	YAG 39-C-20	to 16.1	To 15.9 and 24.1 *	5.50×10^{12}	11.9×10^{12}	$14.6 \pm 3.5 \times 10^{12}$

* Short-exposure trays as active as long.

† DMT spilled on recovery.

TABLE 4.13 NORMALIZED IONIZATION RATE (SC), CONTAMINATION INDEX, AND YIELD RATIO

A number in parentheses indicates the number of zeros between the decimal point and first significant figure.

Shot	Age	r/hr fissions/ft^2
Hypothetical, 100 pct fission, unfractionated fission products, no induced activities	1.12 hrs	(12)6254
	1.45 days	(14)6734
	9.82 days	(15)6748
	30.9 days	(15)1816
	97.3 days	(16)3713
	301 days	(17)5097
Zuni, lagoon-area composition	1.12 hrs	(12)3356
	1.45 days	(14)4134
	9.82 days	(15)3197
	30.9 days	(16)9165
	97.3 days	(16)4097
	301 days	(17)7607
Zuni, cloud composition	1.12 hrs	(12)7093
	1.45 days	(13)1407
	9.82 days	(14)1766
	30.9 days	(15)4430
	97.3 days	(16)8755
	301 days	(16)1121
Flathead, average composition	1.12 hrs	(12)5591
	1.45 days	(14)6994
	9.82 days	(15)7924
	30.9 days	(15)1893
	97.3 days	(16)3832
	301 days	(17)5230
Navajo, average composition	1.12 hrs	(12)6864
	1.45 days	(14)9481
	9.82 days	(15)7816
	30.9 days	(15)2160
	97.3 days	(16)5933
	301 days	(16)1477
Tewa, lagoon-area composition	1.12 hrs	(12)3321
	1.45 days	(14)3564
	9.82 days	(15)3456
	30.9 days	(16)9158
	97.3 days	(16)2843
	301 days	(17)4208
Tewa, cloud and outer fallout composition	1.12 hrs	(12)6446
	1.45 days	(14)8913
	9.82 days	(15)8670
	30.9 days	(15)1971
	97.3 days	(16)4019
	301 days	(17)6009

* Ratio of (r/hr)/(Mt(total)/ft^2) at t for device to (r/hr)/(Mt(total)/ft^2) at t for hypothetical device.

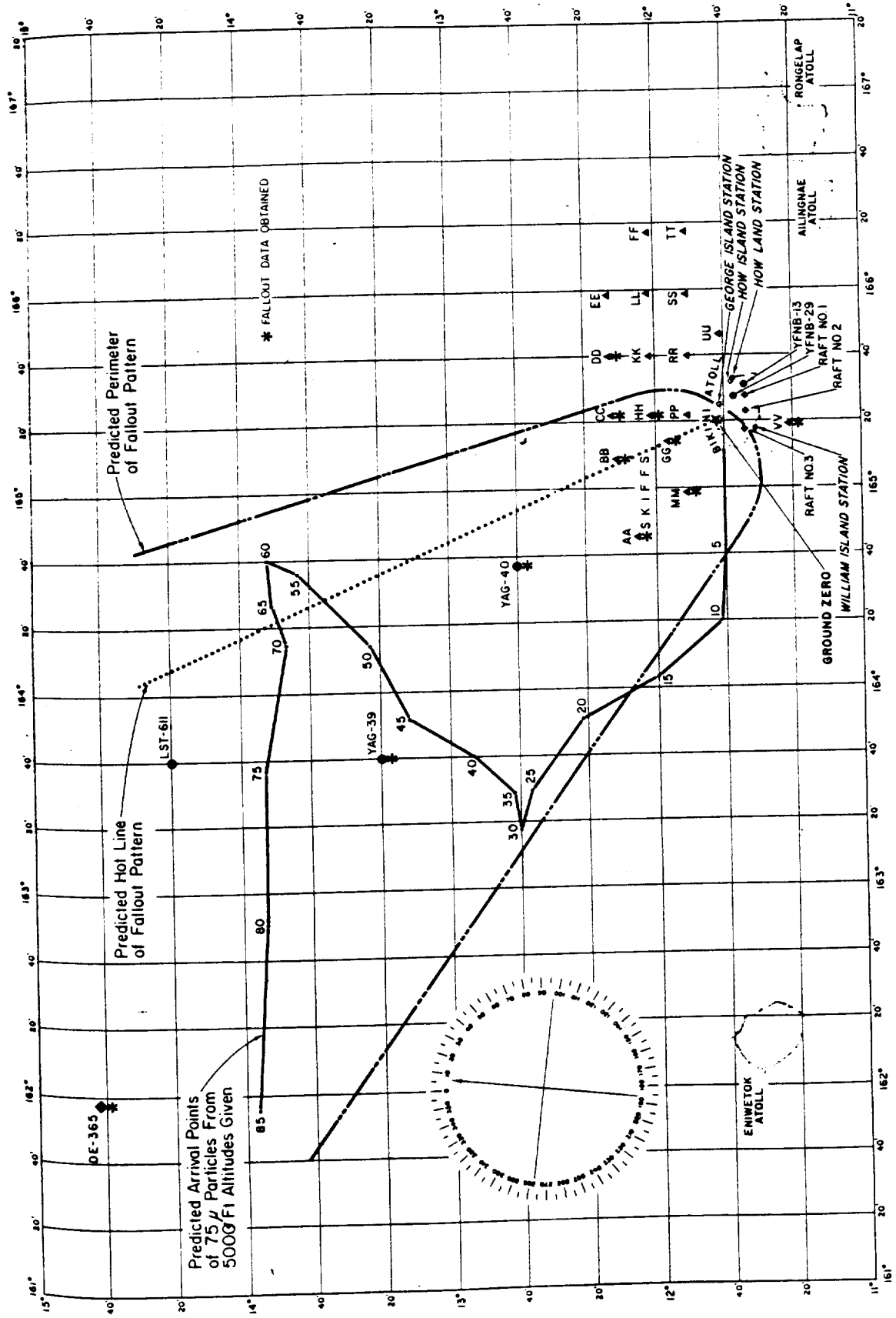

Figure 4.1 · Approximate station locations and predicted fallout pattern, Shot Cherokee.

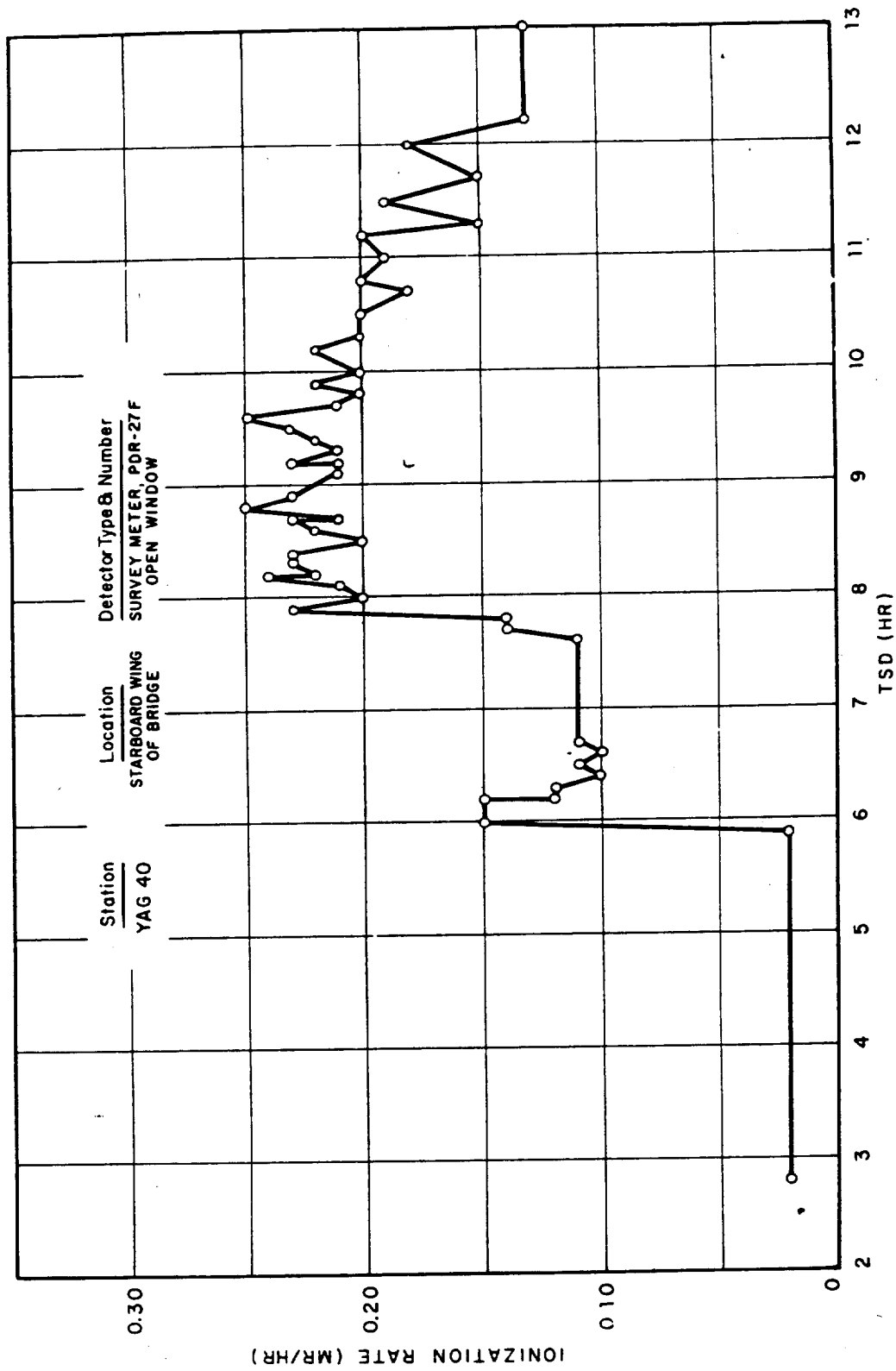

Figure 4.2 Survey-meter measurement of rate of arrival on YAG 40, Shot Cherokee.

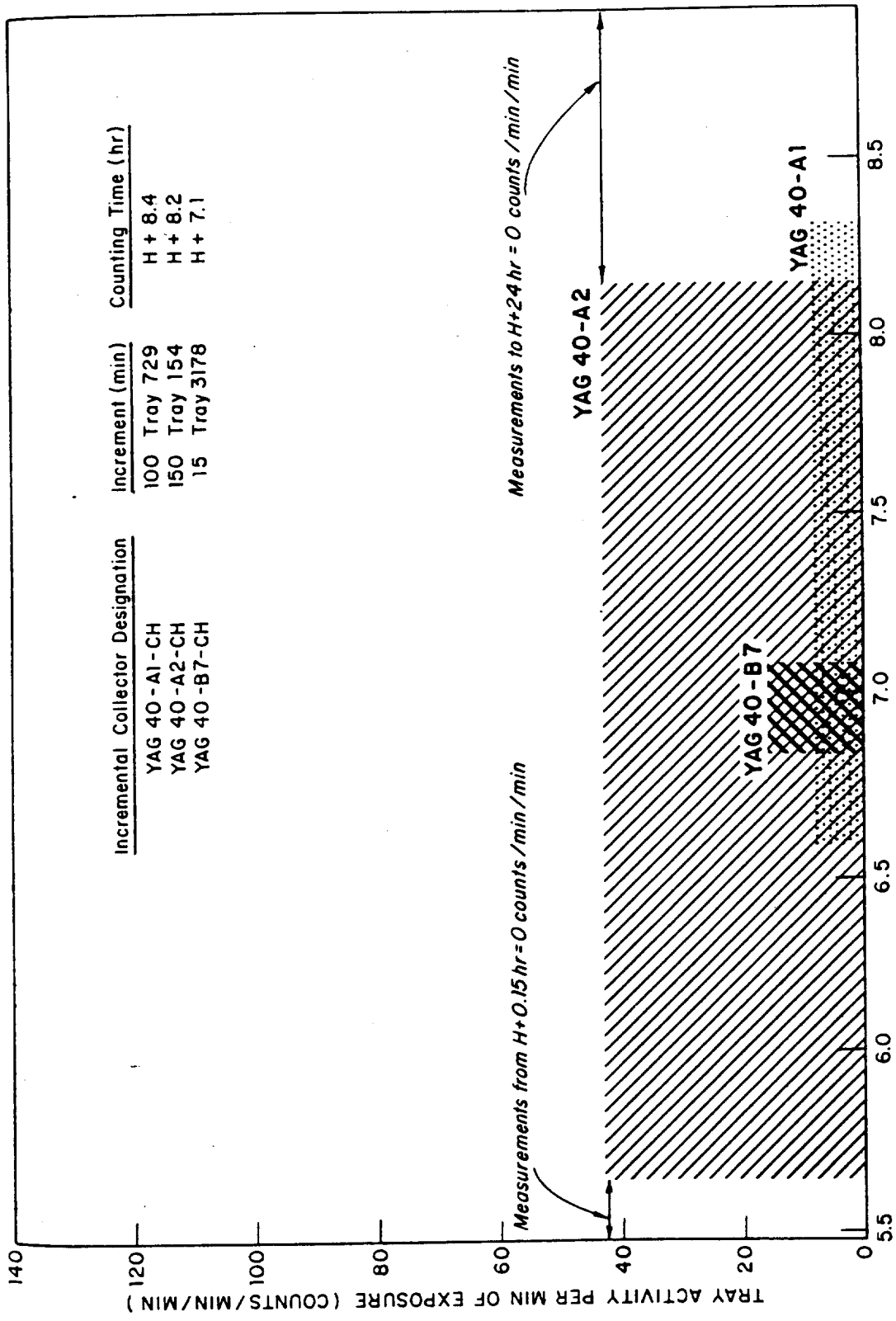

Figure 4.3 Incremental collector measurement of rate of arrival on YAG 40, Shot Cherokee.

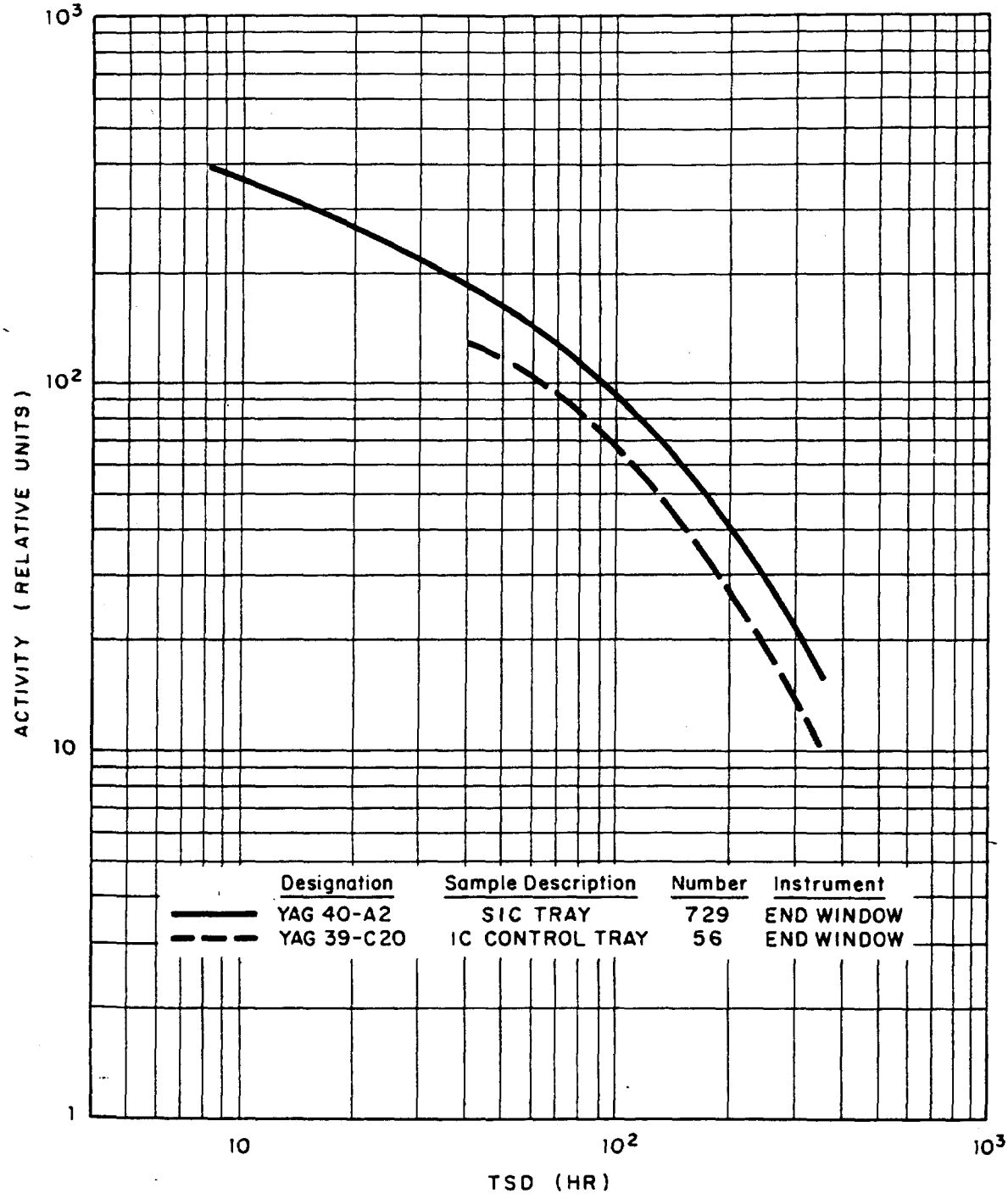

Figure 4.5 Photon decay of slurry particles, Shot Cherokee.

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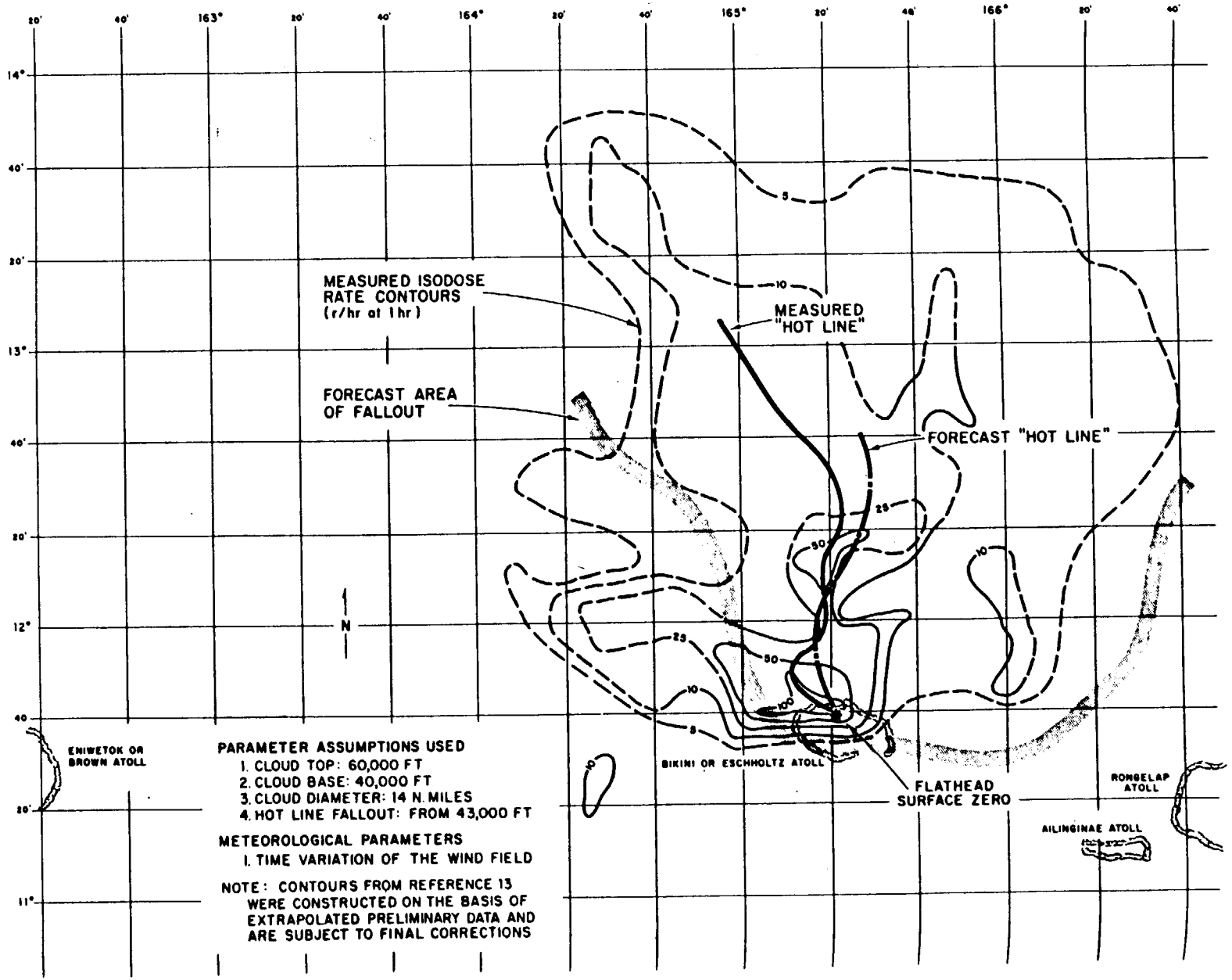


Figure 4.6 Predicted and observed fallout pattern, *Shot Flathead.*

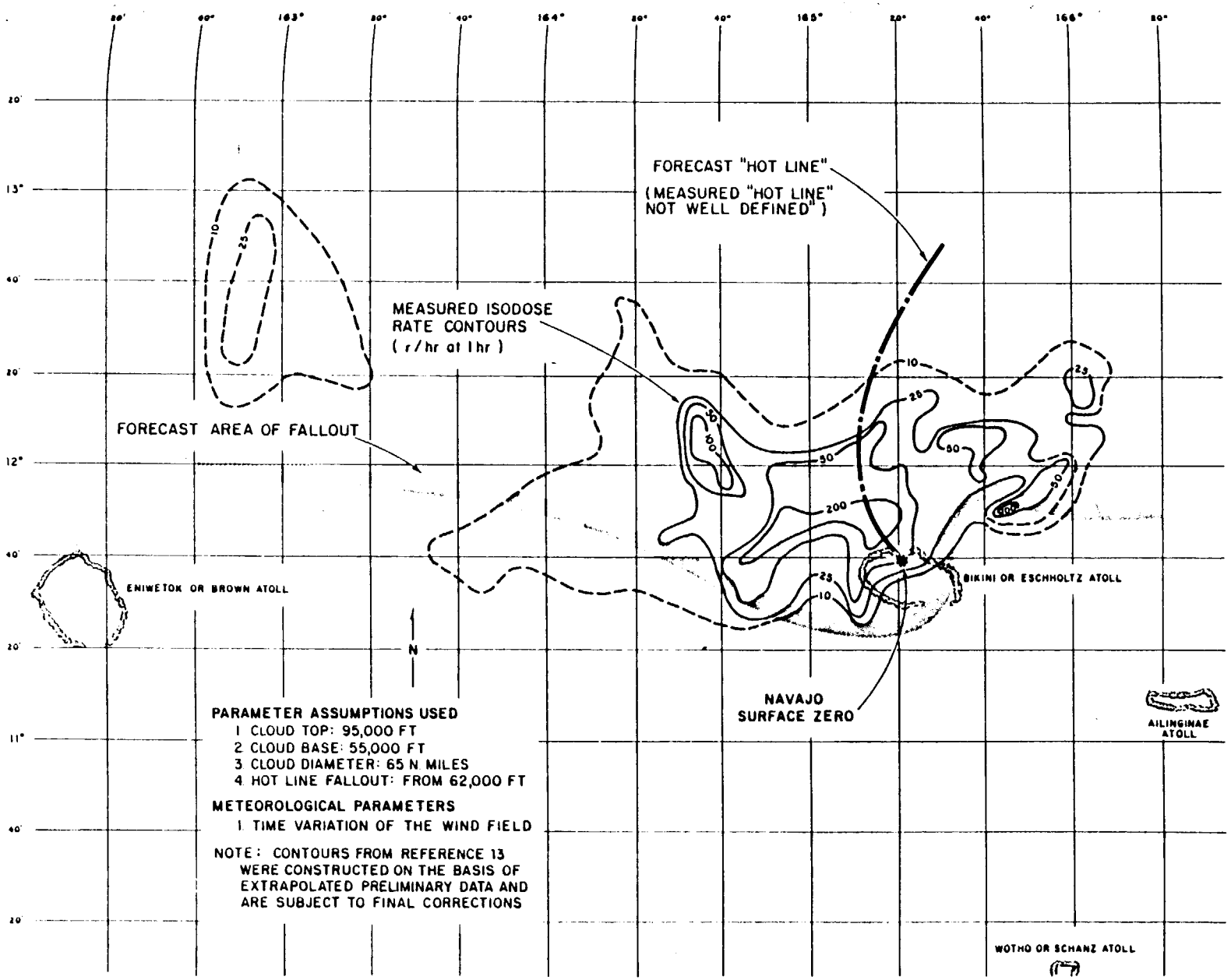


Figure 4.7 Predicted and observed fallout pattern, Shot Navajo.

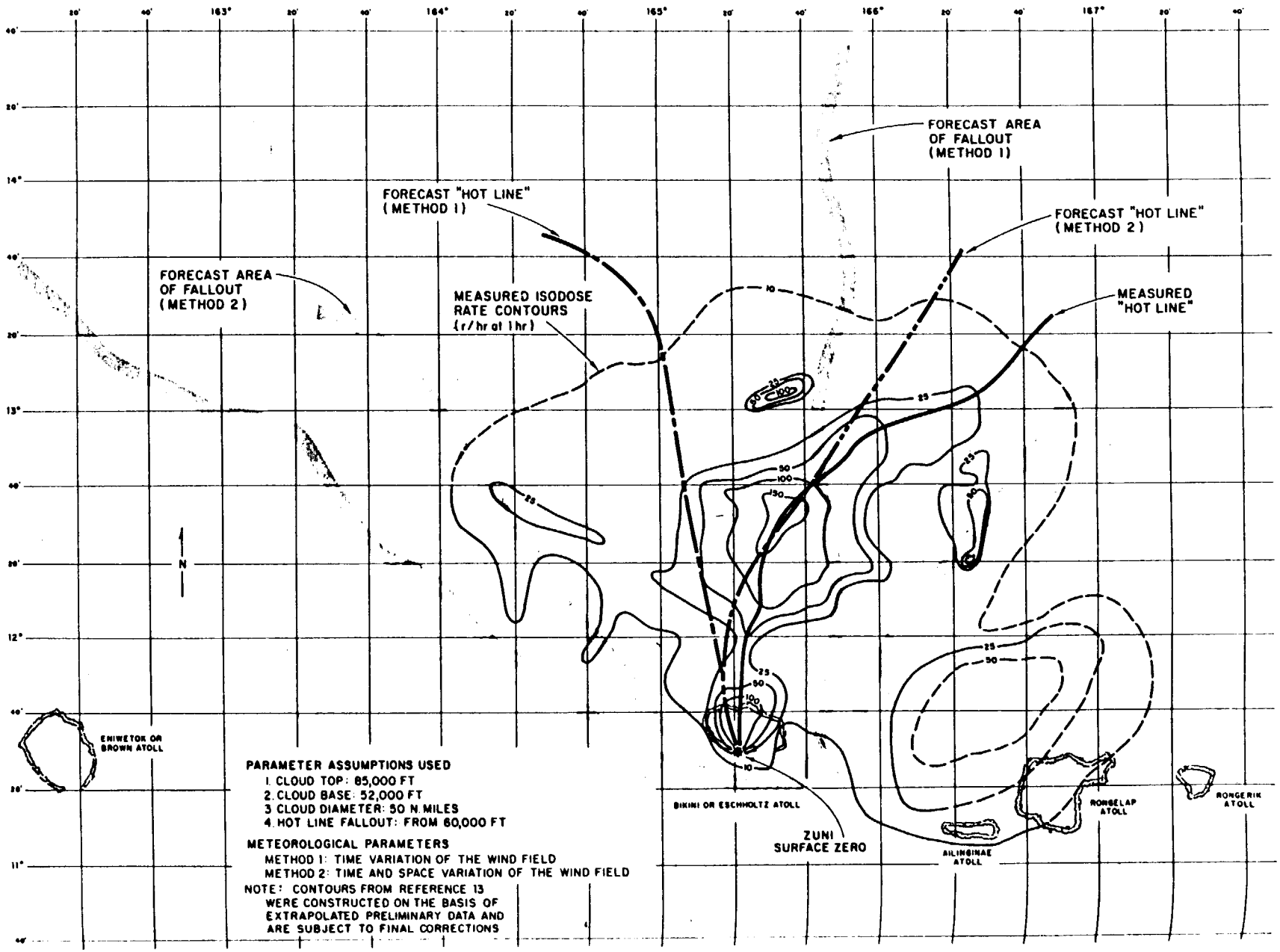


Figure 4.8 Predicted and observed fallout pattern, Shot Zuni.

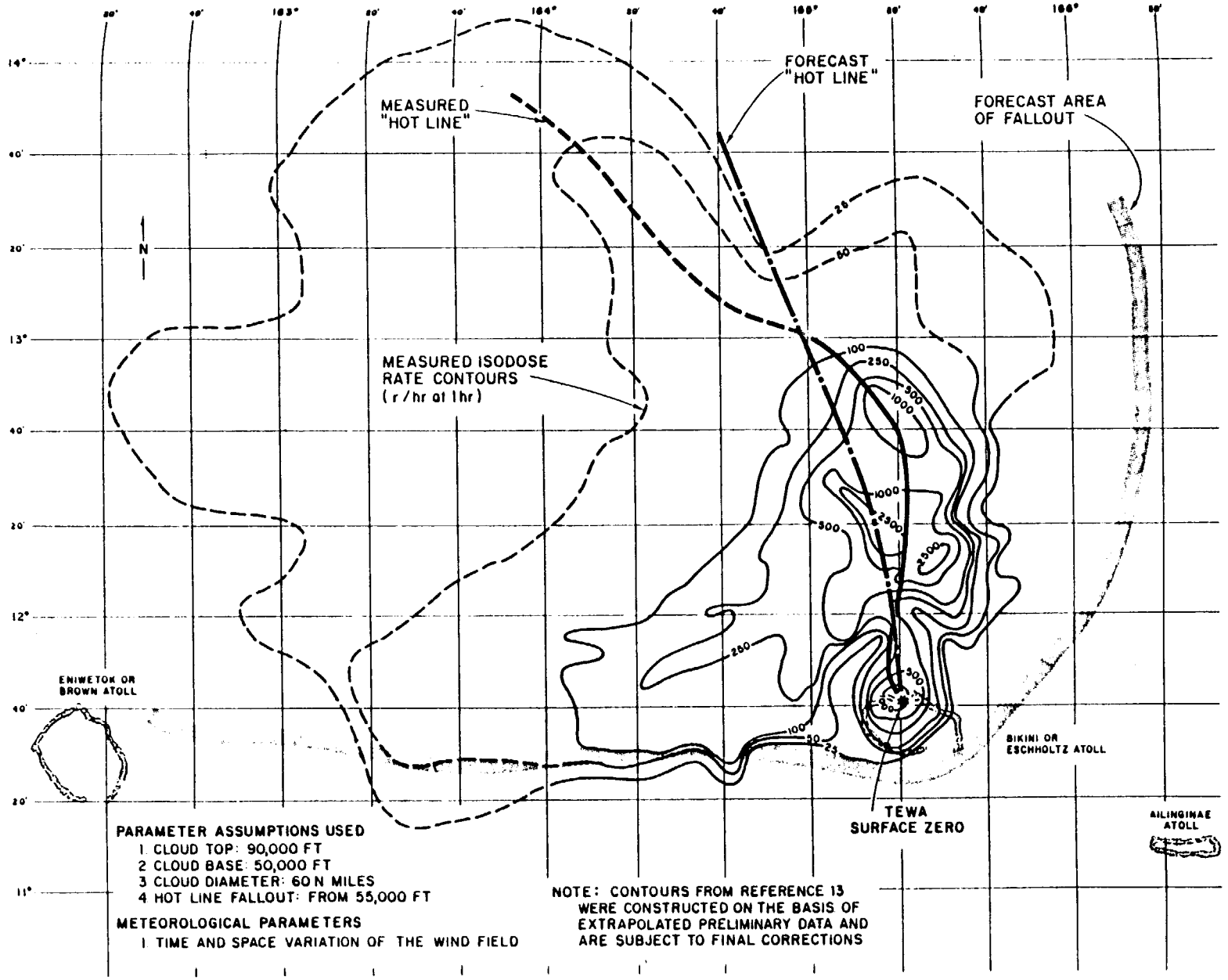
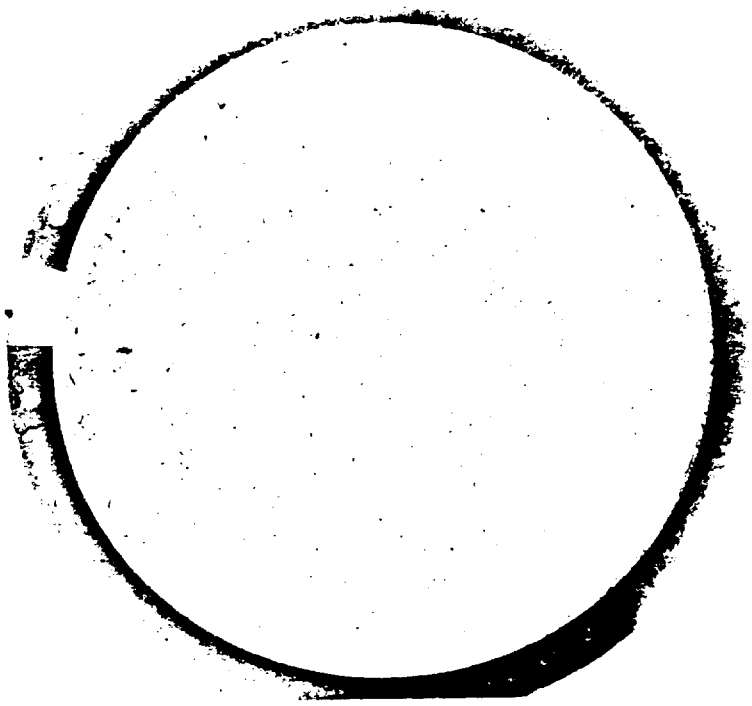


Figure 4.9 Predicted and observed fallout pattern, Shot Tewa.



A HEAVY
COLLECTION
FAR OUT
15 MINUTE EXPOSURE

TRAY NO. 411

YAG 40, B-7
ZUNI

A HEAVY
COLLECTION
CLOSE IN
15 MINUTE EXPOSURE

TRAY NO. 1204

YFNB 13, E-57
ZUNI

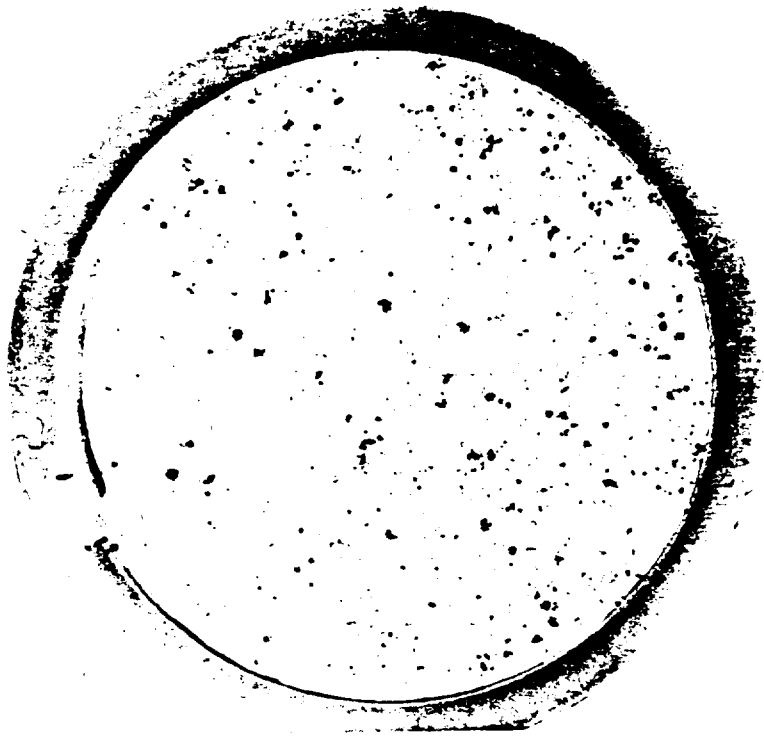


Figure 4.10 Close and distant particle collections, Shot Zuni.

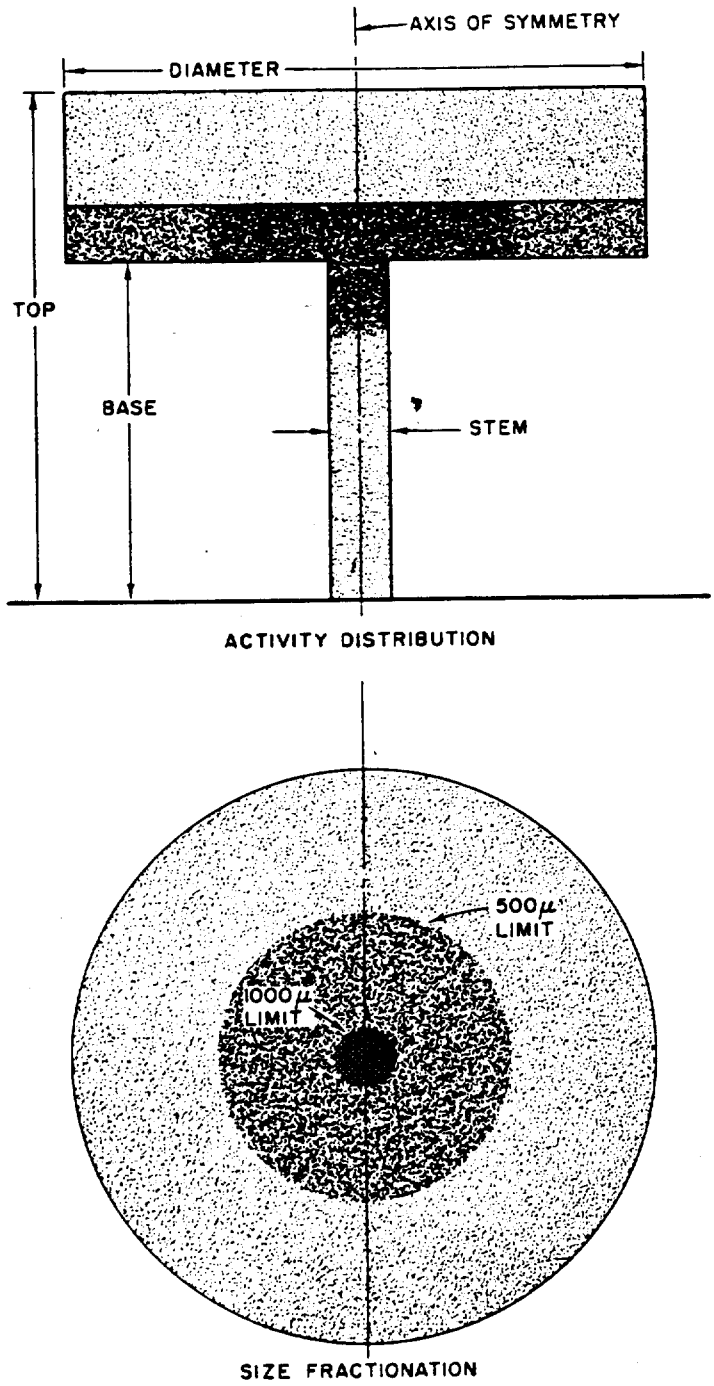


Figure 4.11 Cloud model for fallout prediction.

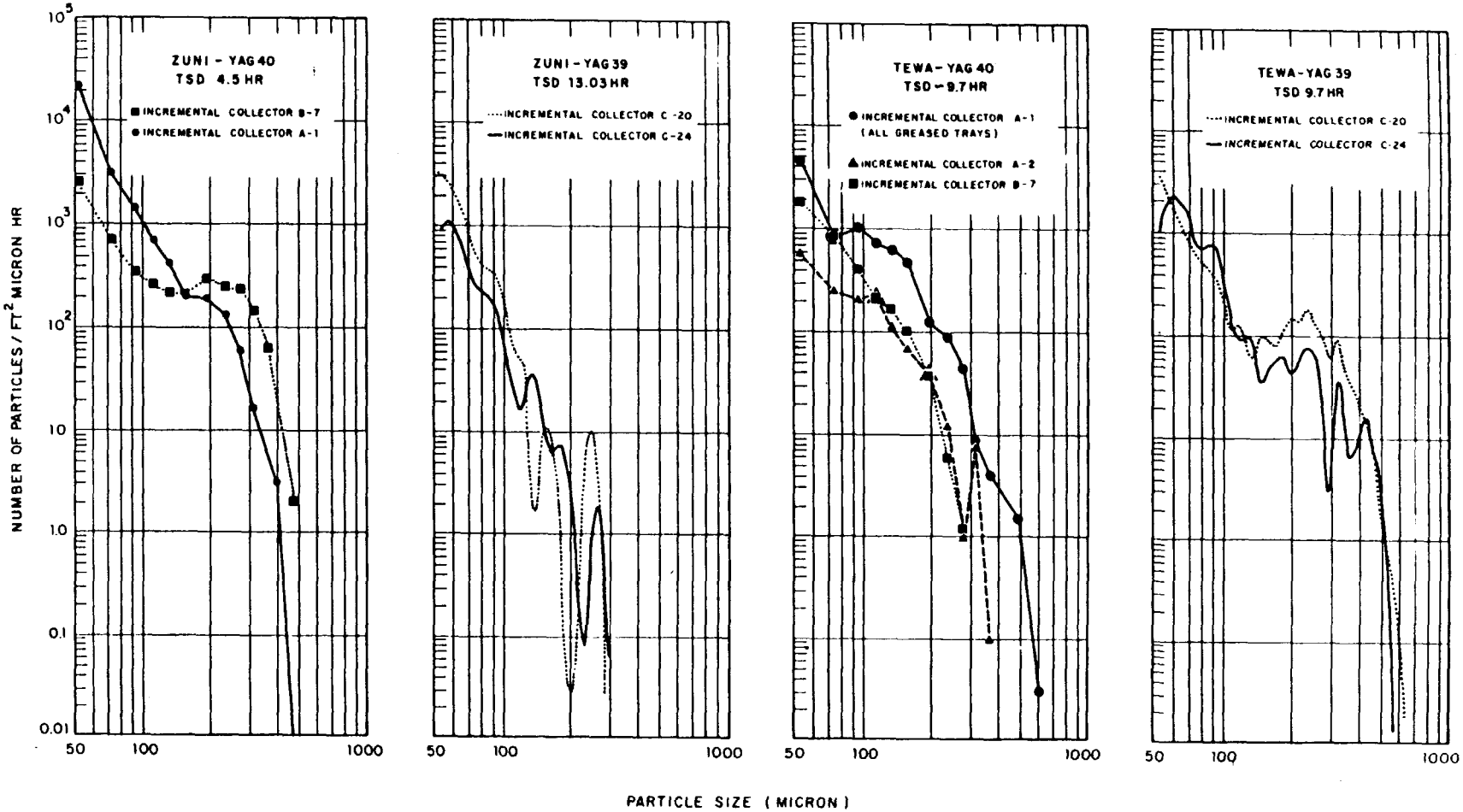


Figure 4.12 Comparison of incremental-collector, particle-size frequency distributions, Shots Zuni and Tewa.

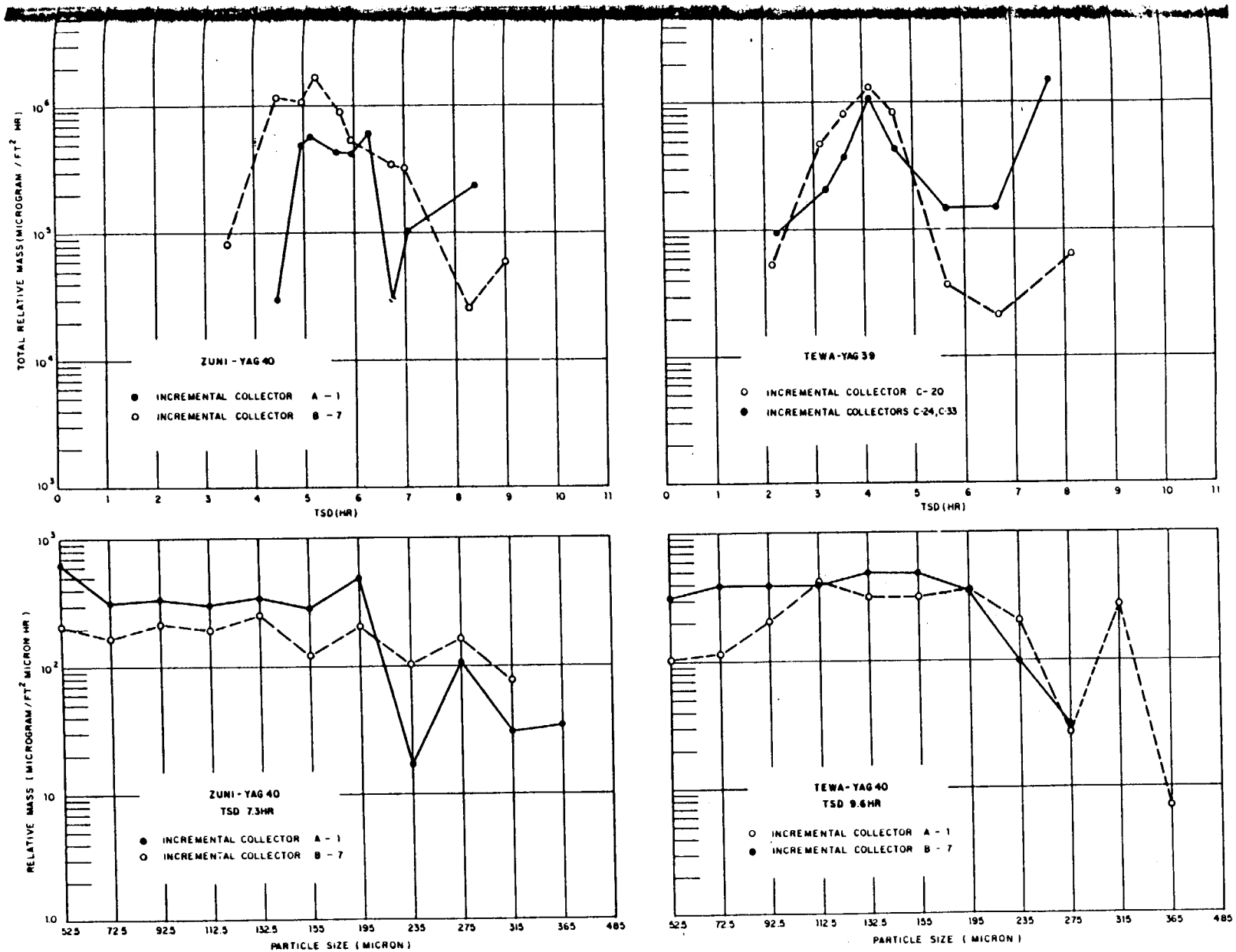


Figure 4.13 Comparison of incremental-collector, mass-arrival rates and variation with particle size, Shots Zuni and Tewa.

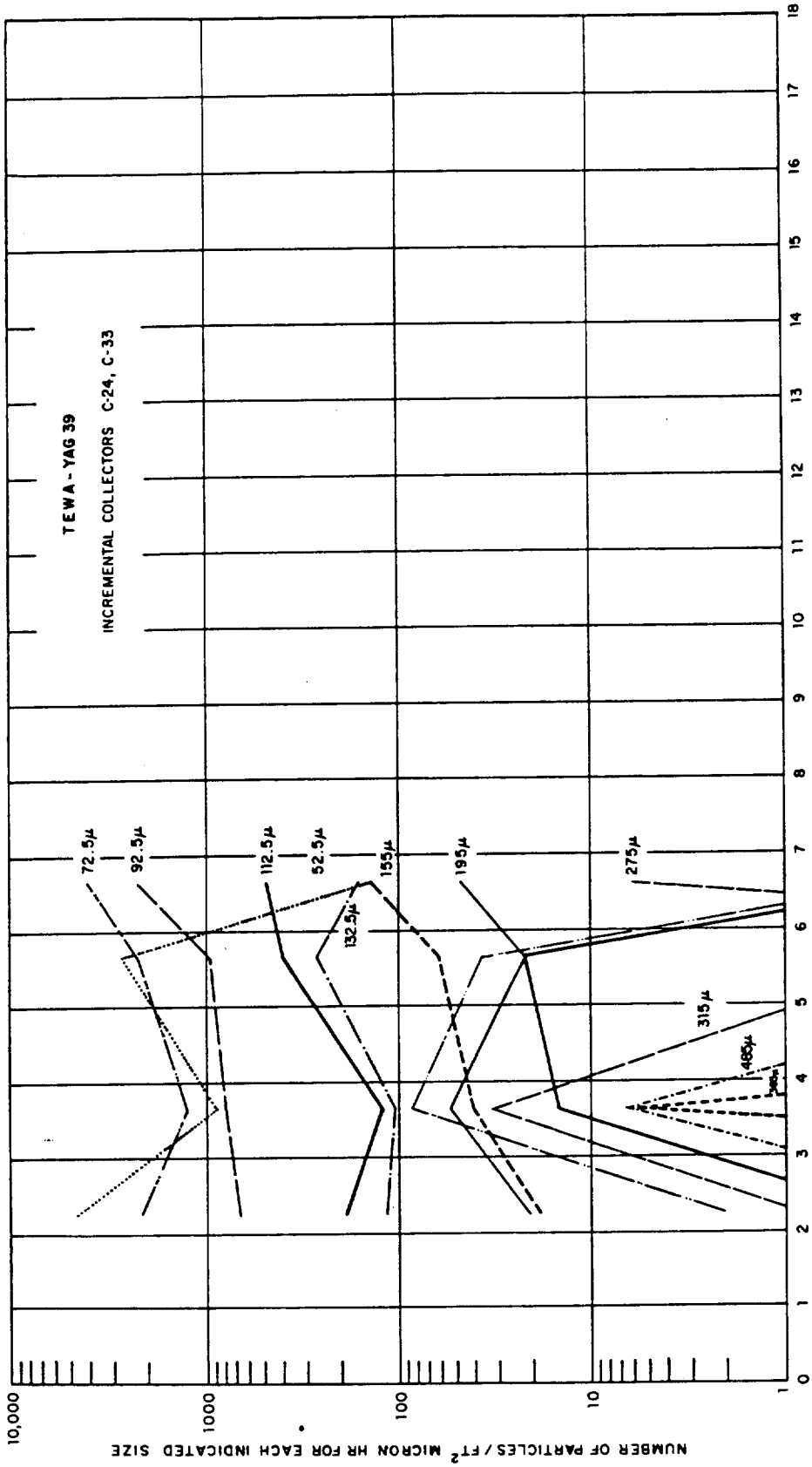


Figure 4.14 Comparative particle-size variation with time, YAG 39, Shot Tewa.

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Appendix B
MEASUREMENTS

B.1 BUILDUP DATA

TABLE B.1 OBSERVED IONIZATION RATE, BY TIME-INTENSITY RECORDER

Station and Shot	
YAG 40-B, No. 9 ZU	
H + hr	mr/hr
3.37	2.28
3.57	16.8
3.73	44.2
4.07	129
4.37	470
5.07	1,480
6.07	3,340
7.07	1,660
8.07	1,360
9.07	1,240
11.1	966
14.1	754
18.1	588
22.1	478
26.1	404
30.1	340
42.1	233
54.1	181
66.1	129
78.1	105

YAG 40, No. 13 (Deck) ZU	
H + hr	r/hr
3.53	0.0165
3.63	0.0318
3.70	0.0386
3.77	0.0722
3.85	0.0847
3.97	0.128
4.05	0.165
4.17	0.249
4.32	0.480
4.57	0.957
4.77	1.31
4.95	1.92
5.08	2.37
5.25	3.25
5.40	4.06
5.57	4.58
5.73	5.67
5.90	5.76
6.07	6.20
6.32	6.75
6.57	7.57
6.82	7.57
7.07	7.29
7.32	7.20
7.57	6.94
7.82	6.66
8.07	6.30
8.32	6.20
8.57	6.02
8.82	5.76
9.07	5.67

Station and Shot	
YAG 40, No. 13 (Deck) ZU	
H + hr	r/hr
9.32	5.49
9.57	5.31
9.82	5.13
10.1	5.13
10.6	4.68
11.1	4.41
11.6	4.14
12.1	3.97
12.6	3.97
13.1	3.70
13.6	3.61
14.1	3.34
14.6	3.43
15.1	3.25
15.6	3.07
16.1	3.07
16.6	2.98
17.1	2.90
17.6	2.81
18.1	2.72
19.1	2.62
20.1	2.45
21.1	2.36
22.1	2.28
24.1	2.10
26.1	1.92
28.1	1.75
30.1	1.66
34.1	1.49
38.1	1.31
42.1	1.17
46.1	1.11
50.1	0.940
54.1	0.844
58.1	0.740
62.1	0.679
66.1	0.635
72.1	0.583
78.1	0.539
80.1	0.495

YAG 39-C, No. 9 ZU	
H + hr	mr/hr
12.7	0.559
13.1	0.706
13.6	0.765
14.1	0.926
15.1	1.47
16.1	2.96
17.1	4.29
18.1	6.54
19.1	8.36
20.1	9.42
21.1	10.2
22.1	10.2
23.1	10.8

Station and Shot	
YAG 39-C, No. 9 ZU	
H + hr	mr/hr
24.1	11.1
25.1	11.4
27.1	11.8
29.1	11.3
30.1	11.3
32.1	10.5
34.1	10.2
36.1	8.96
38.1	8.51
40.1	8.21
42.1	7.74
46.1	6.54
50.1	6.25
54.1	5.64
58.1	5.19
62.1	4.89
66.1	4.60
70.1	4.29
74.1	4.14
78.1	4.00
80.5	3.85

YAG 39, No. 13 (Deck) ZU	
H + hr	mr/hr
13.0	3.24
14.0	4.86
15.0	6.66
16.0	13.1
17.0	17.2
18.0	25.4
19.0	31.8
20.0	34.2
21.0	34.9
24.0	37.4
25.0	37.6
29.0	36.3
30.0	36.2
31.0	34.6
32.2	33.5
42.0	26.3
48.0	21.8
49.0	20.8
50.0	19.9
52.0	19.8
66.0	15.8
68.0	15.4
69.0	14.9
70.0	14.6
72.0	14.2

Station and Shot	
YFNB 13-E, ZU	
H + min	r/hr
20	0.0016
21	0.007
22	0.009
23	0.016
24	0.068
27	0.31
28	0.55
29	0.72
55	2.89
180	1.83
195	1.69
210	1.5
300	0.96
420	0.66
600	0.43
1,015	0.22
1,495	0.16
1,975	0.078
3,415	0.041

How F, ZU	
H + min	r/hr
23	0.0055
24	0.0086
26	0.013
27	0.051
28	0.092
28+	0.37
30	0.47
32	0.66
33	0.68
34	0.73
41	0.87
46	1.09
49	1.61
54	2.13
59	2.57
62	2.87
64	2.87
68	2.74
70	2.57
74	2.74
80	2.61
87	2.57
97	2.48
106	2.48
112	2.39
120	2.17
130	2.00
151	1.70
200	1.17
400	0.54

TABLE B.1 CONTINUED

Station and Shot	
YFNB 29-G ZU	
H+min	r/hr
10	0.0005
20	0.03
26	0.26
27	0.54
28	0.83
29	0.99
31	1.32
33	3.10
35	4.0
36	4.94
43	9.21
49	9.64
94	7.05
124	5.64
139	4.7
184	3.06
274	2.12
424	1.36
484	0.99
544	0.80
574	0.78
649	0.70
799	0.55
1,624	0.31
2,524	0.19
3,424	0.15

YAG 40-B, No. 9 FL	
H + hr	mr/hr
6.00	0.050
8.00	0.550
9.00	5.10
10.0	17.4
11.0	48.0
12.0	71.1
15.0	71.1
16.0	81.5
17.0	81.5
18.0	81.5
19.0	71.1
20.0	71.1
21.0	69.7
22.0	59.4
23.0	58.2
25.0	53.0
30.0	39.0
35.0	35.2
40.0	30.0
45.0	27.6
50.0	16.2
55.0	14.9
58.0	13.7
63.0	12.4
70.0	11.1
75.0	10.4
79.0	9.20

YAG 40, No. 13 (Deck) FL	
H+hr	mr/hr
6.00	0
8.00	1.93
8.57	8.18
9.00	17.4
9.57	38.0
10.0	61.9
11.0	142
12.0	225
13.0	248
14.0	237
15.0	237
16.0	248
17.0	259
18.0	248
19.0	237
20.0	231
21.0	225
22.0	214
23.0	197
24.0	180
30.0	145
35.0	125
40.0	109
45.0	88.4
50.0	56.8
55.0	52.3
58.0	46.6
63.0	44.4
70.0	39.9
75.0	37.6
79.0	22.1

YAG 39-C, No. 9 FL	
H + hr	mr/hr
4.12	0.061
4.37	0.417
4.53	0.646
4.78	1.01
4.95	1.88
5.10	3.30
5.38	6.19
5.68	8.23
6.05	10.7
6.27	12.3
6.52	15.4
6.72	19.4
7.02	21.9
7.28	21.9
7.50	23.7
7.75	26.1
8.02	28.6
8.28	29.9
8.57	29.9
8.77	32.3
9.19	32.9
9.60	31.7

YAG 39-C, No. 9 FL	
H + hr	mr/hr
10.1	32.3
10.5	35.5
11.0	33.4
11.6	37.2
12.1	36.0
12.6	34.6
13.1	33.4
13.6	32.3
14.1	31.0
15.1	29.2
16.0	27.3
17.0	26.1
18.0	24.9
19.0	23.7
20.0	22.5
21.0	21.3
22.0	19.4
23.0	19.4
24.0	17.7
26.0	16.3
28.0	14.6
30.0	13.4
32.0	12.4
34.0	11.6
36.0	11.0
38.0	10.4
40.0	9.80
45.0	8.71
50.0	6.55
55.0	5.77
60.0	5.04
64.9	4.68
70.1	4.33
75.0	4.15
80.0	3.50

YAG 39, No. 13 (Deck) FL	
H + hr	mr/hr
4.62	3.34
5.23	21.8
5.57	42.9
6.57	45.6
7.07	78.4
7.57	87.8
8.57	121
9.00	121
10.0	121
11.0	141
12.0	131
13.0	121
15.0	102
18.0	83.0
22.0	69.0
26.0	55.0
30.0	46.5
36.0	39.2

YAG 39, No. 13 (Deck) FL	
H+hr	mr/hr
42.0	33.7
47.0	28.2
48.0	21.8
54.0	15.4
66.0	10.8
75.0	9.27
76.0	6.30
80.0	6.04

LST 611-D, No. 1 FL	
H+ hr	mr/hr
6.57	0.14
7.32	0.67
7.57	2.2
7.90	15.3
8.40	32
8.73	57
8.90	76
9.07	99
9.23	88
9.40	83
9.57	80
10.1	78
10.9	71
12.1	65
13.1	60
14.1	55
15.6	48
17.6	44
19.6	38
21.6	35
23.6	32

YFNB 13-E FL	
H + min	r/hr
21	0.0016
24	0.0054
26	0.0048
30	0.030
32	0.56
35	2.26
37	6.82
77	21.8
137	11.5
257	5.5
377	2.5
437	1.9
497	1.6
557	1.5
617	1.2
617	1.4

TABLE B.1 CONTINUED

Station and Shot	
YFNB 29 H FL	
H + min	r/hr
35	0.004
36	0.0046
38	0.011
40	0.018
42	0.042
44	0.075
45	0.10
51	0.27
53	0.38
54	0.49
56	0.57
58	0.63
77	0.96
91	0.98
100	0.94
175	0.55
250	0.33
470	0.14
630	0.077
850	0.055
1,100	0.043
1,500	0.024
1,800	0.0198
YAG 40-B, No. 9 NA	
H + hr	mr/hr
5.07	0.146
6.02	0.120
6.23	0.175
6.38	0.260
6.62	0.370
6.87	0.590
6.98	0.800
7.09	1.44
7.14	1.30
7.18	1.88
7.26	2.31
7.36	3.61
7.52	3.55
7.73	4.30
7.93	4.80
8.10	5.55
8.45	7.05
8.69	9.30
8.90	13.1
9.12	19.0
9.27	22.2
9.42	24.1
9.55	26.0
9.70	28.3
9.90	31.0
10.1	33.6
10.3	34.8
10.5	38.7
10.8	42.5

Station and Shot	
YAG 40-B, No. 9 NA	
H + hr	mr/hr
11.0	45.7
11.3	49.3
11.6	51.2
11.9	52.7
12.1	52.7
12.3	55.3
12.5	55.3
12.7	57.8
12.9	55.3
14.0	55.3
15.0	55.3
16.0	55.3
17.0	55.3
17.6	51.4
18.0	50.2
19.0	48.8
20.0	46.3
21.0	25.9
22.0	21.0
23.0	18.4
24.0	17.7
25.0	16.6
26.0	16.2
27.0	14.3
28.0	13.9
29.0	13.1
30.0	12.5
32.0	11.8
34.0	10.8
36.0	10.3
38.0	9.80
40.0	9.20
42.0	9.40
44.0	9.10
46.0	8.20
48.0	7.70
51.0	7.40
54.0	6.05
55.0	6.55
56.0	6.30
58.0	6.18
59.0	5.55
60.0	5.49
62.0	5.30
65.0	4.93
69.0	4.68
75.0	4.18
YAG 40, No. 13 (Deck) NA	
H + hr	mr/hr
4.83	0.200
5.57	0.556
6.12	0.808
6.65	1.80
6.97	3.15

Station and Shot	
YAG 40, No. 13 (Deck) NA	
H + hr	mr/hr
7.18	6.64
7.30	10.0
7.47	11.4
7.63	12.4
7.80	13.7
7.95	14.3
8.10	13.1
8.33	13.0
8.48	13.5
8.62	16.0
8.75	18.6
8.85	27.4
9.02	38.2
9.27	51.4
9.47	56.5
9.67	63.9
9.98	74.5
10.3	80.2
10.6	92.0
11.0	103
11.3	120
11.6	122
12.0	125
12.2	129
12.3	126
12.5	129
12.7	120
13.0	116
13.5	113
14.0	113
15.0	105
15.9	103
16.9	101
18.0	91.4
18.9	87.0
20.0	82.5
20.2	70.1
20.4	36.2
21.0	27.4
22.0	24.1
23.0	21.3
24.0	21.9
25.0	20.8
26.0	19.7
27.0	17.0
28.0	16.4
29.0	15.4
30.0	14.9
32.0	14.3
34.0	13.4
36.0	12.9
38.0	12.0
40.0	11.7
42.0	11.1
44.0	10.6
46.0	10.2
48.0	9.58

Station and Shot	
YAG 40, No. 13 (Deck) NA	
H + hr	mr/hr
50.2	9.15
52.1	7.84
54.0	7.62
56.0	4.79
57.9	4.46
60.1	4.35
64.0	4.08
68.1	3.81
72.0	3.48
74.9	3.32
YAG 39-C, No. 9 NA	
H + hr	mr/hr
1.97	0.161
2.22	4.00
2.38	14.4
2.47	21.4
2.55	33.5
2.65	48.2
3.00	68.3
3.30	88.2
3.50	95.7
3.70	144
3.87	207
4.18	372
4.42	431
4.62	481
4.85	485
5.17	498
5.33	525
5.48	507
5.67	516
5.85	516
6.02	512
6.37	481
6.57	471
6.77	445
7.18	422
7.40	400
7.63	386
8.10	361
8.37	347
8.62	329
9.18	304
9.48	289
9.78	267
10.2	259
10.5	246
10.9	232
11.3	222
11.6	207
12.1	203
12.6	193
13.0	184
14.1	168

TABLE B.1 CONTINUED

Station and Shot		Station and Shot		Station and Shot		Station and Shot	
YAG 39-C, No. 9 NA		YAG 39, No. 13 (Deck) NA		LST 611-D, No. 1 NA		How F NA	
H + hr	mr/hr	H + hr	mr/hr	H + hr	r/hr	H + min	r/hr
15.2	149	6.57	1,130	2.2	0.00042	6	0.0010
16.0	80.0	6.82	900	2.4	0.00045	33	0.0011
17.0	60.7	7.00	773	2.7	0.00051	45	0.0019
18.0	58.1	7.32	728	2.9	0.00087	48	0.0056
19.0	56.9	7.57	671	3.1	0.0015	53	0.048
20.0	53.1	7.82	624	3.2	0.0029	54	0.069
21.0	45.8	8.32	603	3.4	0.0044	55	0.083
22.0	36.1	8.82	557	3.7	0.0085	59	0.11
23.0	34.7	9.32	502	3.8	0.013	66	0.145
24.0	32.4	9.82	468	4.0	0.015	76	0.137
26.0	29.9	10.3	434	4.1	0.017	93	0.13
27.0	25.0	10.8	412	4.4	0.010	100	0.135
28.0	22.6	11.6	378	4.6	0.008	110	0.14
30.0	22.0	12.0	344	4.7	0.011	120	0.148
32.0	21.4	12.6	332	4.80	0.0109	125	0.146
34.0	19.6	13.0	305	4.9	0.012	134	0.148
36.0	18.4	13.6	288	4.97	0.012	140	0.150
38.0	17.8	14.1	277	5.07	0.016	Malfunction	
40.0	17.2	14.6	266	5.6	0.042		
42.0	16.0	15.0	243	6.1	0.043	YFNB 29-H, NA	
44.0	15.3	15.6	221	7.1	0.034	H + min	r/hr
46.0	14.6	15.7	132	10.1	0.020	11	0.0011
48.0	13.9	16.0	110	14.1	0.012	40	0.0012
50.0	13.2	16.6	108	16.1	0.0081	45	0.0026
55.0	11.7	17.0	106	18.1	0.0067	47	0.0091
59.0	10.6	18.0	98.7	24.1	0.0044	50	0.033
60.0	11.7	19.0	92.1	27.0	0.0039	51	0.062
64.0	10.1	20.0	88.9			52	0.075
70.1	9.15	21.0	76.7	YFNB 13-E NA		53	0.079
73.9	8.43	22.0	69.1	H + min	r/hr	54	0.083
		23.0	65.8	10	0.0047	60	0.084
YAG 39, No. 13 (Deck) NA		24.0	63.8	18	0.037	72	0.10
H + hr	mr/hr	25.0	61.3	27	0.60	80	0.116
1.82	0.78	26.0	59.1	29	4.04	104	0.108
2.30	11.0	27.0	53.6	38	8.5	180	0.087
2.37	18.7	28.0	51.4	46	7.0	205	0.080
2.43	36.1	30.0	48.1	58	4.6	255	0.066
2.50	73.3	32.0	44.8	72	3.4	330	0.047
2.68	110	34.0	42.8	91	2.75	400	0.035
2.78	101	36.0	41.0	118	2.3	420	0.030
3.00	143	38.0	39.3	121	2.1	480	0.026
3.12	177	40.0	37.5	136	1.8	610	0.018
3.40	221	42.0	35.8	219	1.0	780	0.013
3.65	310	44.0	34.5	301	0.67	920	0.011
3.90	558	47.0	31.8	406	0.41	1,000	0.0078
4.12	900	50.0	29.1	631	0.20	1,005	0.0054
4.32	1,240	53.0	25.4	1,006	0.08	1,150	0.0050
4.57	1,070	56.0	23.6	1,066	0.059	1,250	0.0040
4.82	900	59.0	23.6	1,306	0.042	1,300	0.0034
5.00	900	64.0	21.8	1,546	0.036	1,600	0.0028
5.32	1,010	66.0	20.8	1,666	0.033	1,900	0.0023
5.57	1,130	74.0	18.1	1,786	0.031	2,400	0.0020
5.82	1,130			1,906	0.046	2,700	0.0014
6.00	1,490			2,026	0.056		
6.32	1,240			2,146	0.056		
				2,266	0.041		
				2,626	0.032		
				3,106	0.02		
				3,466	0.015		

TABLE B.1 CONTINUED

Station and Shot		Station and Shot		Station and Shot		Station and Shot	
YAG 40-B, No. 9 TE		YAG 40-B, No. 9 TE		YAG 40, No. 13 (Deck) TE		YAG 39-C, No. 9 TE	
H + hr	r/hr	H + hr	r/hr	H + hr	r/hr	H + hr	r/hr
4.35	0.0017	44.2	0.262	24.0	2.74	3.32	1.70
4.60	0.0057	46.2	0.207	25.0	2.64	3.37	1.88
4.73	0.0134	48.2	0.193	26.0	2.52	3.42	2.05
4.95	0.127	50.2	0.191	26.6	2.08	3.45	2.05
5.20	0.598	52.2	0.179	27.0	1.47	3.50	2.33
5.43	1.08	54.2	0.173	28.0	1.42	3.53	2.51
5.58	1.33	56.2	0.167	29.0	1.42	3.57	2.51
5.88	1.76	58.2	0.159	30.0	1.36	3.62	2.69
6.10	1.86	60.2	0.152	31.0	1.35	3.63	2.69
6.38	1.90	62.2	0.139	32.0	1.30	3.67	3.05
6.62	1.98	64.2	0.133	33.0	1.25	3.70	3.14
6.85	2.13	66.2	0.129	34.0	1.22	3.73	3.14
7.10	2.23	68.2	0.127	35.0	1.19	3.85	3.59
7.28	2.24	70.2	0.126	36.0	1.14	3.93	4.96
7.70	2.21	72.2	0.118	37.0	1.08	3.95	5.43
8.23	2.03	75.2	0.113	38.0	0.730	4.00	5.89
8.75	1.94			39.0	0.660	4.03	6.34
9.25	2.09	YAG 40, No. 13 (Deck) TE		40.0	0.588	4.10	6.72
9.75	1.89	H + hr	r/hr	41.0	0.572	4.13	7.28
10.3	1.85	4.48	0.0040	42.0	0.566	4.15	7.55
10.8	1.79	4.62	0.0097	43.0	0.512	4.20	7.55
11.2	1.80	4.75	0.0252	44.0	0.478	4.22	8.20
11.7	1.56	4.90	0.111	45.0	0.470	4.25	8.67
12.2	1.60	4.97	0.233	46.0	0.260	4.28	8.20
12.8	1.57	5.07	0.793	48.0	0.243	4.30	8.67
13.2	1.48	5.15	1.20	50.0	0.215	4.31	9.15
13.8	1.40	5.32	2.41	52.0	0.203	4.32	8.67
14.2	1.35	5.48	3.52	54.0	0.172	4.35	9.15
14.7	1.32	5.73	5.08	55.0	0.181	4.42	10.1
15.2	1.25	6.00	6.31	57.0	0.172	4.47	11.0
15.8	1.21	6.23	6.76	59.0	0.154	4.52	11.0
16.2	1.15	6.73	7.22	61.0	0.154	4.58	11.5
16.7	1.13	7.00	7.22	63.0	0.152	4.62	11.0
17.2	1.09	7.23	7.43	65.0	0.140	4.73	9.15
17.8	1.05	7.73	6.65	68.0	0.132	5.07	8.20
18.2	1.01	8.00	6.19	72.0	0.123	5.15	8.20
19.2	0.992	8.23	5.97	75.0	0.115	5.23	7.55
20.2	0.927	8.57	5.97			6.15	5.43
21.2	0.881	9.00	6.54	YAG 39-C, No. 9 TE		7.15	4.52
22.2	0.832	9.23	6.65	H + hr	r/hr	8.15	4.06
23.2	0.784	10.0	6.65	2.00	0.0017	9.15	3.59
24.2	0.770	11.0	6.65	2.20	0.0175	10.2	2.96
25.2	0.702	11.6	6.65	2.23	0.0308	11.2	2.70
26.2	0.670	12.0	6.54	2.28	0.0467	12.2	2.33
27.3	0.608	13.0	5.64	2.30	0.0591	13.2	2.15
28.2	0.596	14.0	5.42	2.33	0.0714	14.2	1.88
29.3	0.576	15.0	4.29	2.35	0.0837	15.2	1.70
30.2	0.568	16.0	3.97	2.37	0.109	16.2	1.52
31.2	0.554	17.0	3.84	2.70	0.514	17.2	1.30
32.2	0.527	18.0	3.52	2.85	0.728	18.1	1.13
33.4	0.439	19.0	3.29	2.97	0.906	19.2	1.07
34.1	0.432	20.0	3.18	3.05	1.08	20.2	0.995
35.3	0.415	21.0	3.08	3.13	1.29	21.1	0.942
36.1	0.403	22.0	2.96	3.20	1.41	22.1	0.888
38.4	0.339	23.0	2.86	3.27	1.60	24.2	0.763
40.4	0.307					26.2	0.594
42.2	0.292					28.2	0.505

TABLE B.1 CONTINUED

Station and Shot		Station and Shot		Station and Shot		Station and Shot	
YAG 39 C, No. 9 TE		YAG 39, No. 13 (Deck) TE		LST 611-D, No. 1 TE		How F TE	
H+hr	r/hr	H+hr	r/hr	H+hr	r/hr	H+min	r/hr
30.1	0.465	20.0	3.88	10.73	0.24	101	0.0069
32.2	0.461	21.0	3.61	10.98	0.18	107	0.016
34.2	0.412	22.0	3.52	11.23	0.182	109	0.024
36.2	0.381	23.0	3.52	11.73	0.187	112	0.032
38.3	0.376	24.0	3.07	12.23	0.198	113	0.036
40.1	0.310	25.0	2.98	12.35	0.205	115	0.041
42.2	0.292	26.0	2.90	12.98	0.224	116	0.044
44.0	0.290	27.0	2.36	13.56	0.256	117	0.051
48.0	0.243	28.0	2.28	14.23	0.247	118	0.060
50.1	0.238	29.1	2.19	14.85	0.236	119	0.064
53.2	0.215	30.1	2.10	15.48	0.215	128	0.101
56.2	0.192	31.0	2.10	21.11	0.146	142	0.15
60.1	0.171	32.1	1.92	24.23	0.112	149	0.19
63.9	0.158	33.1	1.84	31.73	0.085	152	0.20
66.2	0.151	34.0	1.75	34.48	0.066	173	0.22
70.5	0.139	35.0	1.49	38.48	0.054	195	0.21
72.4	0.136	36.0	1.44	40.48	0.051	221	0.19
74.4	0.131	37.1	1.36			251	0.173
76.4	0.123	38.1	1.37	YFNB 13-E TE		341	0.11
78.6	0.113	39.0	1.09	H+min	r/hr	401	0.092
79.4	0.113	40.0	1.04	18	0.0056	599	0.061
		41.0	1.00	26	0.013	749	0.051
YAG 39, No. 13 (Deck) TE		42.0	0.972	30	0.021	899	0.042
H+hr	r/hr	42.9	0.955	32	0.022	1,289	0.029
1.30	0.0002	45.0	0.894	35	0.020	1,589	0.024
2.10	0.0082	47.2	0.886	36	0.025	1,889	0.021
2.23	0.0479	49.0	0.825	37	0.019		
2.32	0.138	51.0	0.799	40	0.018	YFNB 29-H TE	
2.35	0.172	53.0	0.772	43	0.020	H+min	r/hr
2.38	0.263	55.0	0.711	46	0.022	1	0.00056
2.57	0.691	57.0	0.659	50	0.030	3	0.00046
2.73	1.55	59.0	0.642	61	0.090	14	0.0016
3.00	2.81	61.0	0.616	71	0.20	16	0.015
3.23	4.41	63.1	0.564	81	0.52	20	0.047
3.32	5.31	64.9	0.555	91	1.11	22	0.30
3.57	8.02	66.0	0.529	101	1.87	24	0.60
4.00	13.6	67.0	0.516	111	2.13	25	0.80
4.07	14.5	69.0	0.499	114	2.34	26	0.90
4.32	18.4	71.0	0.485	116	2.5	28	2.0
4.57	19.3	73.0	0.459	118	2.34	34	3.8
5.00	20.2	75.0	0.451	123	2.21	38	7.4
5.57	18.7	77.0	0.424	177	2.25	44	10.0
6.00	16.9	79.0	0.376	204	1.9	49	13.2
6.57	15.5	80.2	0.374	309	1.0	490	9.9
7.00	14.5			429	0.7	670	7.1
7.57	13.4	LST 611-D, No. 1 TE		909	0.30	730	6.9
8.57	12.7	H+hr	r/hr	1,269	0.15	850	6.3
9.00	11.7	7.18	0.002	1,500	0.12	920	5.9
9.57	10.8	7.23	0.0033	2,109	0.076	970	5.3
10.0	9.83	7.73	0.024	3,069	0.042	1,300	3.5
10.6	8.96	8.23	0.019	3,309	0.016	2,000	1.9
11.0	8.96	8.65	0.027	3,549	0.009	3,000	1.14
12.0	8.49	8.95	0.048	3,789	0.0085	3,200	0.72
13.0	7.12	9.28	0.082	4,029	0.0081		
14.0	6.19	9.51	0.10	4,509	0.0072		
15.0	5.84	9.78	0.12				
16.0	5.84	10.0	0.12				
17.0	5.13	10.28	0.13				
18.0	4.85	10.48	0.17				

TABLE B.3 MEASURED RATE OF PARTICLE DEPOSITION, SHOTS ZUNI AND TEWA

Station	Mean Collection Time (TSD) hr	Number of Particles/ft²/hr/micron-interval — Mean Particle Size, microns																		
		52.5	72.5	92.5	112.5	132.5	155	195	235	275	315	365	485	605	725	845	1,000	1,400	1,800	2,200	2,600
Shot Zuni																					
YAG 40-B-7 ZU	3.98	2,139	609	310	168	72	42	46	67	42	20	27	3	0.02							
	4.98	9,229	3,042	2,507	1,641	1,292	807	399	244	163	89	14	0.01								
	4.99	2,434	3,342	2,198	1,308	920	425	297	129	43	7										
	7.00	7,330	1,584	922	599	344	278	127	65	16	10	13	0.01								
	8.02	756	224	82	49	22	6														
	9.03	2,839	634	362	221	120	39	36	1	3											
	10.04	1,180	280	109	92	67	32	15	15	1	0.4	0.5									
	11.06	1,059	219	127	83	66	13	1	1	0.4											
	12.07	529	237	92	23	9	2	0.4	0.4												
	13.08	741	201	106	63	28	40	8	0.4	2											
	14.09	786	246	149	51	22	7	2			1										
	15.11	105	201	147	56	15	0.1	7	0.1												
YAG 39-C-20 ZU	13.03	918	322	161	26	38	8	5		1											
	16.03	183	125	69	25	12	1	4													
	17.10	562	127	72	93	32	37	6					0.7								
	19.14	3,637	617	162	55	16	19	5	2	3	0.2				0.2	0.01					
	21.18	361	126	161	79	63	36	8	0.1				0.7								
	23.18	306	110	52	27	1	4	0.8	0.1												
	25.18	260	59	32	22	4	5	0.3		2											
	27.18	796	273	133	31	14	11	13	3	0.8											
	29.18	61	70	10	16	0.9	7	5													
YFNB 29-G-71 ZU	0.12	5,607	909	628	431	61	59	48	7		0.3	6									
	0.23	11,623	1,620	959	235	177	133	91	17	18	17	13	4	0.01							
	0.43	3,058	815	305	432	97	163	28	69	1	11	1	1								
	0.68	5,700	1,100	399	133	102	126	58	12			3	0.1								
	0.90	9,208	2,450	1,149	1,072	689	484	615	207	295	293	133	74	52	20	24	7	0.2	0.04	0.9	
	1.11	4,713	1,015	404	141	162	117	21	2	33	2	5	12	6	4	4	1	0.4			
	1.27	3,441	1,898	429	270	61	10	38		10	10	20	15	3	5	0.01					
	1.49	8,316	1,760	1,057	257	143	88	15	71	45	13	14	30	9	15	0.01					
	1.67	10,770	3,764	1,113	454	374	129	205	10	30	57	8	9	10	3	0.1	0.3	0.3			
YFNB 13-E-57 ZU	0.63	668	299	179	82	79	54	29	17	32	14	8	3	5	0.8	1	0.8	1	0.01		
	2.13	857	235	170	55	50	19	5	14	9	5	6	3	3	2	0.04					
	3.63	1,439	420	271	163	124	53	22	15	3	0.3	1									
	5.38	352	69	45	29	10	0.4	0.4	2												
	6.63	306	63	41	8	5	6	7	8	2	0.4	0.3									
	8.13	428	68	64	23	20	80		2												
	9.63	183	73	17	12	11	2	2	1												
	11.38	581	101	45	44	15	8	5	0.2	2											
	12.88	1,546	447	181	86	52	45	4	4	0.8	1	0.2	0.1	0.1		1		0.2			
How F-64 ZU	0.38	673	242	131	41	29	30	7	4	0.1	1										
	1.38	443	254	88	38	7	10	6	9	2	7	4	1	5	0.5	0.1	0.01				
	2.38	352	171	118	35	3	10	1	0.3		1	3	0.4	0.1	0.4						
	3.38	597	284	112	22	16	6	0.7	1	1		0.5	0.02								
	4.13	4,074	1,184	495	339	171	154	72	43	23	13	7	0.9	1							
	5.38	168	92	53	14	14	4														
	6.38	642	153	88	27	29	7	3	1	1	4										
	7.38	2,173	754	374	236	72	42	20	14	15	1	3	0.2	0.1							
	8.13	1,010	428	161	67	24	28	10	1			0.5	0.02								
	9.38	964	384	109	71	24	11	3	1	0.3		0.1	0.7								
	10.38	30	268	615	370	189	74	52	15	11	4	0.8	0.6	0.02	0.4						

TABLE B.3 CONTINUED

Station	Mean Collection Time (TSD)	Number of Particles/ft²/hr/micron-interval																		
		Mean Particle Size, microns																		
		52.5	72.5	92.5	112.5	132.5	155	195	235	275	315	365	485	605	725	845	1,000	1,400	1,800	2,200	2,600
	hr																				
Shot Tewa																					
YAG 40-	4.64	1,267	271	139	119	35	10	3	1	1											
B-7 TE	6.14	2,161	1,230	822	309	135	82	59	21	12		1	0.4								
	7.64	1,607	711	558	395	265	175	80	33	10	0.05		1	0.02							
	9.14	737	730	495	296	164	121	45	19	2	1										
	10.64	1,104	484	272	194	144	46	41	1	1	1										
	12.14	392	151	85	29	10	1	5	1				0.5	0.02							
	13.64	470	241	79	52	7	1	3		1			0.2								
	15.14	958	49	64	25	11	16	2			1										
	16.64	571	180	121	72	33	45	3													
YAG-39-	3.64	3,952	885	459	126	71	110	154	195	128	86	42	3	0.01							
C-20 TE	5.64	424	508	202	70	38	16	12	10	4											
	6.66	1,882	268	126	55	9	21	11	5												
	8.16	684	835	513	171	79	38	12	1	5	2	2	0.02								
	9.66	476	124	67	15	12	2	4	4												
	11.16	971	190	94	25	32	7	2	2	1	1										
	12.66	579	139	39	28	6	2	3				0.8									
	14.16	1,371	178	58	40	16	21			1		0.1	0.1								
	15.16	863	286	114	69	24	20	9	2	6	0.6	0.8	0.6								
LST 611-	8.18	76	189	278	132	79	30	12		1											
D-41 TE	8.98	342	244	264	147	106	29	25	2												
	10.18	764	272	201	122	87	50	19													
	10.98	157	602	412	158	128	37	18	1												
	12.18	114	214	245	62	53	53	10	2												
	12.98	385	100	134	112	61	65	3													
	14.18	290	102	61	40	17	2	2													
	14.98	429	266	122	34	19	10					0.03	0.03								
	16.18	511	127	87	64	12	11	5	5	1		1									
	16.98	77	166	184	92	24	9	6	1						0.05						
YFNB 13-	0.13	1,334	565	725	538	352	94	31	15	7	2	0.2			0.4	0.6		0.1			
E-57 TE	0.63	1,198	375	265	166	147	69	77	24	7	1	0.05	0.8	0.1							
	1.13	552	837	591	612	333	120	43	13	23	6	6	0.5		0.7						
	1.63	976	928	652	302	156	125	52	23	22	28	25	13	1	0.4	0.2					
YFNB 29-	0.13	536	2,196	1,134	275	146	72	43	27	8	2	4	0.4	0.6	2	0.1	0.09				
H-78 TE	1.38	310	1,120	990	491	360	153	146	101	85	41	30	42	26	7	0.04					
	2.87	135	809	481	229	151	79	43	45	150	125	142	47	0.5	5	0.02					
	4.37	322	183	206	65	51	46	73	68	72	21	3									
	5.87	256	68	48	10		16	2	2												
	7.37	113	97	50	13		9	1	2												
	8.87	512	99	47	9			1	3	1											
	10.37	188	247	70	25		4		1												
	11.87	514	268	106	31	18	7	4		2											
	13.37	200	278	114	12	33	9	4	2	1		0.8									
How F-	0.13	840	361	128	94	38	29	11	5												
64 TE	1.13	941	289	112	85	21	24	1	1												
	2.13	164	199	102	90	75	20	12	1	4	1	0.3									
	3.13	157	79	121	48	25	13	8		2											
	4.13	462	301	162	97	70	62	16				0.02	0.4								
	5.13	208	205	98	34	13		9	8			0.1	0.1								
	6.13	220	163	86	36	4	32	4	1	0.	0.3										
	7.13	2,189	518	151	104	72	54	7		1											
	8.13	842	404	145	60	32	19	1	2	4	2	1	0.02	0.4							

TABLE B.4 CALCULATED RATE OF MASS DEPOSITION, SHOTS ZUNI AND TEWA

Station	Mean Collection Time (TSD)	Microgram/ft²/hr/micron-interval — Mean Particle Size, microns																			μg/ft²-hr
		52.5	72.5	92.5	112.5	132.5	155	195	235	275	315	365	485	605	725	845	1,000	1,400	1,800	2,200	2,600	(52.5 to 2,600 μ)
	hr																					
Shot Zuni																						384,855
YAG 40-B-7 ZU	3.98	383	287	303	296	208	197	426	1,078	1,088	608	1,631	534	5								1,051,060
	4.98	1,652	1,433	2,450	2,867	3,716	3,713	3,657	3,927	4,213	3,471	893	2									523,970
	5.99	4,358	1,574	2,148	2,301	2,646	1,958	2,727	2,070	1,124	275	22										319,725
	7.00	1,312	746	901	1,054	991	1,282	1,189	1,046	418	396	804	2									9,880
	8.02	138	106	80	86	66	32															59,520
	9.03	507	299	354	390	346	183	336	31	92												35,715
	10.04	211	132	107	162	250	149	143	250	48												23,705
	11.06	190	103	124	147	190	63	11	22	10	16	31	21									7,975
	12.07	98	112	91	42	28	11	4	6													20,790
	13.08	133	95	104	112	82	187	77	7	62												12,315
	14.09	141	116	146	90	65	36	21														12,080
	15.11	19	95	145	99	44	1	64	2	2	52											16,360
YAG 39-C-20 ZU	13.03	164	152	158	47	110	38	48	1	35												7,295
	15.03	33	59	87	45	37	6	36	1													23,990
	17.10	101	60	71	164	92	173	59					100									49,120
	19.14	651	244	158	98	48	89	53	40	69	11				140	11						28,570
	21.18	65	59	178	140	181	167	80	2				103	1								6,015
	23.18	56	52	61	49	8	19	8	22													5,210
	25.18	47	26	32	39	13	25	3	52													19,890
	27.18	142	129	131	56	41	51	124	80	23												5,160
	29.18	11	33	11	29	3	34	66	1													121,620
YFNB 29-G-71 ZU	0.12	1,004	428	614	760	176	273	446	116		15	403										341,395
	0.23	2,081	763	938	418	511	613	639	274	471	678	790	625	3								184,070
	0.43	548	384	296	760	281	750	257	1,113	33	440	75	160									122,090
	0.68	1,020	518	391	235	294	584	533	204			227	22									16,159,645
	0.90	1,648	1,154	1,123	1,887	1,982	2,231	5,634	3,324	7,600	11,329	7,999	10,436	14,481	9,421	18,075	9,541	975	338	12,888		1,977,700
	1.11	844	478	395	250	468	539	196	47	852	90	357	1,725	1,823	2,321	3,605	1,396	159				853,960
	1.27	616	894	419	477	149	46	367	1	259	412	1,234	2,184	1,003	3,803	11						1,656,015
	1.49	1,489	829	1,033	452	413	407	142	1,142	1,164	828	879	4,250	2,599	7,517	13						2,054,285
	1.67	1,928	1,773	1,088	799	1,077	594	1,886	172	787	2,215	824	1,386	2,840	1,669	127	437	1,084				2,038,090
YFNB 13-E-57 ZU	0.63	123	141	178	145	229	252	273	277	826	568	409	464	1,555	317	814	1,004	3,432	70			425,380
	2.13	153	111	167	97	145	88	49	233	247	214	371	490	993	1,412	304						63,355
	3.63	258	198	268	287	359	246	208	244	89	14	102	10									5,670
	5.38	63	33	44	52	30	2	4	33													16,870
	6.63	55	30	40	15	16	28	73	131	59	17	18										6,400
	8.13	77	32	63	42	60	41		33													4,890
	9.63	33	35	17	22	34	9	26	21													10,505
	11.38	104	48	44	78	43	27	49	3	70	4											329,360
	12.88	277	211	178	152	150	208	44	65	21	54	18	19	37	2	1,013	5	690	4			21,190
How F-64 ZU	0.38	121	114	128	73	86	139	66	78	4	53											375,050
	1.38	79	120	87	68	23	46	63	156	62	307	255	247	1,440	277	759	20					69,430
	2.38	63	81	116	62	9	49	17	6	2	76	197	60	45	215							17,305
	3.38	107	134	110	40	52	28	7	23	35		32	3									258,965
	4.13	729	558	448	596	494	710	661	701	603	538	438	134	296								4,285
	5.38	30	44	53	25	41	22															17,515
	6.38	115	72	86	48	85	32	32	22	33	156	1										103,190
	7.38	389	356	366	414	208	196	190	226	391	54	195	42	37								27,045
	8.13	181	202	156	118	71	133	96	25	2		32	3									35,485
	9.38	173	181	167	126	72	62	31	30	10		11	103									136,468
	10.38	8	120	601	651	486	342	482	243	301	180	49	93	7	215							

TABLE B.4 CONTINUED

Station	Mean Collection Time (T&D) hr	Microgram/ft²/hr/micron-interval Mean Particle Size, microns 52.5	72.5	92.5	112.5	132.5	155	195	235	275	315	365	485	605	725	845	1,000	1,400	1,800	2,200	2,600	μg/ft²-hr (52.5 to 2,600 μ)
Shot Tewa																						
YAG 40-B-7 TE	4.64	227	128	136	210	102	47	36	22	33												20,310
	6.14	391	580	803	544	383	381	543	350	332	26	60	68	6								135,560
	7.64	286	335	546	696	762	805	733	535	272	2		221	6								160,745
	9.14	132	344	484	522	474	561	402	308	57	52	3										69,050
	10.64	196	228	267	342	414	214	380	21	49	15											55,860
	12.14	70	71	83	51	32	37	54	22				75	7								22,065
	13.64	84	114	78	93	21	6	36	1	34		17	37									20,320
	15.14	172	23	63	44	32	75	23	13	20	75	9	18									17,865
	16.64	102	85	118	127	95	209	30	12	20												20,840
YAG 39-C-20 TE	3.64	700	417	449	222	205	509	1,418	3,140	3,306	3,359	4,289	3,660	113								793,650
	5.64	76	240	196	134	111	74	113	165	113	3											37,865
	6.66	337	126	134	97	27	99	109	86	2												20,940
	8.16	123	394	503	301	228	178	111	20	134	109	134	3									63,635
	9.66	85	59	66	27	35	13	43	73													9,335
	11.16	174	90	82	44	82	35	25	39	32	80											15,625
	12.66	104	66	39	90	18	9	34				49										10,335
	14.16	246	84	57	72	48	98	3	1	34		145	131									18,020
	15.16	155	136	112	133	70	95	90	42	144	21	842	841	2								42,065
LST 611-D-41 TE	8.16	14	89	272	233	229	142	111	1	47	65											31,225
	8.96	61	115	256	259	506	137	231	36	13												35,500
	10.16	137	128	197	216	250	231	183														32,700
	10.96	28	284	463	279	368	173	180	3													40,080
	12.16	21	101	238	110	154	244	94	46													24,505
	12.96	68	48	131	197	177	300	31	1													22,905
	14.16	52	48	60	71	49	13	23														6,105
	14.96	77	125	119	61	56	47	2				23	49									24,810
	16.16	92	60	85	114	36	54	54	92	43	3	63										21,665
	16.96	14	78	181	163	71	43	55	17						270	20						53,560
YFNB 13-E-67 TE	0.13	239	267	709	948	1,014	436	288	250	196	116	15			198	496	2	464	46			429,220
	0.63	214	177	259	293	424	320	707	387	185	53	3	119	32								114,155
	1.13	99	395	578	1,078	857	655	399	210	607	240	6,956	495		732	168						285,440
	1.63	175	437	637	532	447	578	479	376	570	1,098	1,846	1,872	418	198							622,925
YFNB 29-H-78 TE	0.13	96	1,035	1,108	485	430	333	401	434	231	99	253	63	196	1,114	107	118					349,010
	1.38	56	531	967	865	1,036	708	1,340	1,626	2,193	1,594	1,836	6,955	7,287	3,364	33						2,594,355
	2.87	24	381	471	404	435	366	402	722	3,879	4,675	8,588	6,636	1,408	249	18						2,268,935
	4.37	58	87	202	116	147	216	677	1,103	1,874	844	19										197,675
	5.87	46	32	48	18	3	76	20	42													8,665
	7.37	20	48	30	24	1	46	13	34													5,685
	8.87	92	47	47	16			14	51	32												7,265
	10.37	34	116	69	46		19	6	22	3												7,790
	11.87	92	127	104	56	53	33	44		59												12,775
	13.37	36	131	113	22	96	43	44	37	36		51										18,085
How F-64 TE	0.13	150	170	125	166	112	137	103	93													23,130
	1.13	169	139	110	130	63	113	9	50	11	16											16,675
	2.13	29	94	101	159	217	96	111	32	119	67	281										31,945
	3.13	28	35	119	86	74	61	77	2	89												15,495
	4.13	83	142	159	172	203	289	153	5			1	65									37,580
	5.13	37	97	96	61	39	3	84	133	13	17	10	20									22,275
	6.13	40	77	85	64	13	15	38	19	23	15		37	61								37,000
	7.13	392	244	148	184	207	252	66		36	3											34,575
	8.13	151	191	143	106	94	89	18	48	111	99	74	4	132								49,370

TABLE B.5 MEASURED RATE OF PARTICLE DEPOSITION, SUPPLEMENTARY DATA, SHOTS ZUNI AND TEWA

Station	Mean Collection Time (TSD)	Number of Particles/ft²/hr/micron-interval — Mean Particle Size, microns																		
		52.5	72.5	92.5	112.5	132.5	155	195	235	275	315	365	485	605	725	845	1,000	1,400	1,800	2,200	2,600
	hr																				
Shot Zuni																					
YAG 40-	3.49	5,933	817	317	96	47	16	14	3	22	2	0.8	0.8								
B-7 ZU	3.74	702	142	70	17	28	10	29	20	11	4	5	4	0.1	0.6						
	4.47	2,560	719	361	266	229	216	295	250	239	141	62	2								
	5.23	13,014	5,721	3,903	2,251	1,483	1,274	677	547	246	90	20	0.5	0.4							
	5.48	12,143	3,741	2,742	1,920	1,199	1,015	479	189	134	22	7									
	5.74	26,027	5,739	2,784	1,914	1,343	524	624	145	92	36	2									
	6.24	25,940	2,933	1,794	737	469	180	162	88	2	8	0.02									
	6.75	11,973	1,654	1,322	724	566	365	164	64	27	17	3									
	7.25	1,165	356	215	106	88	26	22	6	6	1										
	7.76	423	212	128	63	41	9	3	1												
	8.27	771	233	165	88	59	24	7	10												
	8.52	242	350	156	145	53	36	13	6												
	8.78	2,390	229	153	100	44	31	15	1												
	9.28	4,115	531	329	134	33	38	11		2		0.02	0.4								
	9.53	1,255	369	339	202	123	84	25	8	2	0.4										
	9.79	1,074	328	205	135	110	67	35	12	6	1	4	0.02								
	10.55	892	223	145	107	41	32	15	1		4	0.06	1	1							
	10.80	771	270	140	136	47	25	8	7	1	0.6										
	11.31	559	215	134	102	72	42	19	14	3	0.4	0.8									
	11.56	514	180	74	34	14	6	2		4											
	11.81	1,074	168	141	80	32	9	4													
	12.32	984	156	81	16	11	2	1	1												
	12.58	378	168	107	71	33	45	1	2												
	12.83	696	97	101	52	44	27	6	4			0.5	0.02								
	13.33	726	173	109	62	47	10	22	2												
	13.59	741	161	65	24	11	8														
	13.84	847	95	60	25	10	8	1	1		0.9	0.2									
	14.35	1,069	119	46	39	8	1	3													
	14.60	801	166	67	12	10	2	1	1	1		0.8									
	14.88	1,664	148	120	53	16	6	1	3	2											
	15.36	968	78	46	55	9	3	5													
	15.61	720	172	152	41	42	32	4	1		4	0.02	0.4								
YAG 39-	12.53	367	94	39	21	10	13														
C-20 ZU	14.03	1,224	220	75	10	4	3	1				0.1	1	0.02							
	14.28	428	253	147	70	16	21	4													
	15.28	91	57	11	17	10	9	3	1												
	15.78	561	151	85	33	16	3	5			0.5	0.04	0.4								
	16.03	153	123	79	31	14	6														
	16.28	398	85	64	30	14	1														
	22.18	91	62	70	9	14	4		0.4		0.4										
	24.17	260	148	48	53	10	1	2	0.5	0.4											
	26.18	76	67	37	8	2		2													
	29.93	995	288	70	56	10	11	2				0.5	0.1								
YFNB 13-	0.13	1,699	416	271	131	78	38	21	7	2	0.4										
E-57 ZU	0.88	4,088	982	665	468	355	399	155	104	69	27	11	16	16	2	1	3	0.07			
	1.13	16,492	1,638	997	681	389	269	306	94	124	71	55	28	9	10	3	0.04				
	1.63	6,031	1,904	973	526	326	189	143	64	62	74	31	16	7	3	0.2	0.09				
	1.88	2,939	843	575	278	125	128	94	21	19	13	16	18	5	4	1	0.2				
	2.63	1,729	555	312	85	22	15	7	1	3	4	4	2	0.8							
	3.38	1,071	286	168	99	19	50	39	20	7	0.1	0.4	0.04	0.4							
	4.63	1,117	81	27	11	10	5														
	5.13	336	161	63	23	23	3	4													
	5.88	352	113	16	17	5		4													
	6.38	620	85	45	34	19	5	6	4												
	6.88	673	190	56	42	3	2	1													
	7.38	1,209	273	229	69	80	20	12	0.8	0.4	2										
	7.88	1,576	273	130	41	14	13	7	2	1											
	8.63	641	266	186	34	81	7	8													
	9.13	678	190	56	51	4	8		8	1	0.09										

TABLE B.5 CONTINUED

Station	Mean Collection Time (TSD) hr	Number of Particles/ft³/hr/micron-interval — Mean Particle Size, microns																		
		52.5	72.5	92.5	112.5	132.5	155	195	235	275	315	365	485	605	725	845	1,000	1,400	1,800	2,200	2,600
Shot Zuni																					
	9.88	857	126	68	27	6	4		2												
	10.38	352	90	3	5	5	1														
	11.88	949	152	53	14	13	11	10													
	12.13	780	109	27	27	15	8		0.4	0.4		0.5	0.02								
	12.38	719	214	114	33	23	7	5	7	.1											
	12.63	1,056	333	177	39	35	7	3	2												
YFNB 29-	0.20	21,899	2,193	915	590	360	154	111	20												
G-71 ZU	0.40	6,394	1,450	1,143	315	429	92	63	36		3	0.1									
	0.59	728	141	94	35	18	15	33	2	0.2	2	0.07	0.08	0.2							
	0.80	14,251	1,102	589	271	133	155	18	7	2			1	7	3	3	1	1	0.04		
	0.99	4,950	3,581	1,561	1,008	720	253	237	104	49	21	53	42	40	3	0.01	3	1	0.04		
	1.20	8,112	2,524	729	318	205	99	67	32	0.8	22	6	26	7	18	4	0.03	0.02			
	1.24	15,421	2,393	788	787	248	222	145	76	9	0.04	29	72	56	14	6	1	8	0.04		
	1.36	12,745	1,734	720	464	412	97	59	122	64	39	65	33	13	2						
	1.60	20,626	753	678	313	109	90	34	54	29	17	47	15	10	0.01						
	1.67	10,770	3,764	1,113	454	374	129	205	10	30	57	8	9	10	3	0.1	0.3	0.3			
	1.78	6,029	1,337	1,135	438	176	56	81	44	2	23	33	8	4	0.9						
	1.84	52,072	30,301	17,978	9,110	3,663	2,261	1,188	593	207	182	83	80	14	9	6					
Shot Tewa																					
YAG 40-	5.14	292	1,179	448	219	133	65	46	16	14	0.1										
B-7 TE	5.64	1,073	1,846	981	386	224	199	109	33	22	1	0.8									
	6.64	984	752	551	358	168	104	65	36	13	4										
	7.14	1,141	1,094	660	339	218	112	71	25	16	2										
	8.14	1,004	515	317	243	108	79	34	14												
	8.64	230	572	525	353	218	107	35	25	1	7	1	0.1								
	9.64	1,715	836	404	225	169	105	38	6	1											
	10.14	1,108	564	290	157	90	43	18	7	1	1										
	11.14	1,078	240	145	68	52	11	13	2		1										
	11.64	310	263	196	99	83	34	10	10	3											
	12.64	441	318	174	168	78	55	13	3	1	0.1	0.7	0.4								
	13.14	616	218	111	34	8	9			1	1										
	14.14	837	230	94	21	18	15														
	14.64	312	256	93	98	30	11	1													
	15.64	292	124	113	90	13	10	2		1					0.4	0.02					
	16.14	220	128	43	37	4	3														
	17.14	518	225	114	58	6	9	3		6	0.9										
	17.64	514	244	130	28	24	9	2	2	1											
YAG 39-	3.14	1,904	528	324	165	86	49	57	21	90	61	20	4	0.6							
C-20 TE	4.14	6,405	2,623	1,857	1,148	1,165	793	550	375	225	123	13	1								
	4.64	716	1,909	1,574	968	900	580	468	247	142	47	4	0.01	0.7	0.03						
	6.16	1,280	314	151	96	66	31	11	21	1	3										
LST 611-	11.78	364	611	266	56	44	7	7													
D-41 TE	15.78	267	95	50			1														
	16.58	210	49	34	10																
	17.38	58	126	93	36		5	1													
	17.78	77	180	107	32	43	30	2													
YFNB 29-	1.88	1,236	940	453	219	145	455	92	49	58	54	64	25	10	1	1					
H-78 TE	3.88	2,927	343	251	128	72	74	66	86	123	87	62	45	7	0.03						
	4.12	450	187	81	7	39	44	88	83	67	15	1	0.04	0.8							

TABLE B.6 CALCULATED RATE OF MASS DEPOSITION, SUPPLEMENTARY DATA, SHOTS ZUNI AND TEWA

Station	Mean Collection Time (TBD)	Number of Particles/ft²/hr/micron-interval — Mean Particle Size, microns																			mg/ft²-hr
		52.5	72.5	92.5	112.5	132.5	155	195	235	275	315	365	485	605	725	845	1,000	1,400	1,800	2,200	2,600	(52.5 to 2,600 μ)
	hr																					
Shot Zuni																						
YAG 40-B-7 ZU	3.49	1,082	385	310	169	136	76	135	62	388	85	49	124									82,845
	3.74	126	97	89	31	63	48	272	321	298	158	360	568	38	326	1						172,285
	4.47	458	339	384	466	600	998	2,709	4,016	6,167	5,482	3,744	232									1,187,535
	5.23	2,330	2,695	2,814	3,960	4,264	5,861	6,303	6,780	6,230	3,491	1,251	72	116								1,677,520
	5.48	2,174	1,762	2,678	3,379	3,448	4,672	4,392	3,040	2,450	672	456										934,715
	5.74	4,659	2,706	2,721	3,367	3,863	3,414	5,723	3,334	2,367	1,393	181	1									894,770
	6.24	4,643	1,382	1,788	1,296	1,361	829	1,485	1,411	141	235	24										309,070
	6.78	2,143	778	1,292	1,275	1,628	1,680	1,508	1,035	718	690	208										348,695
	7.23	208	168	211	181	256	121	200	102	161	76	6										47,510
	7.76	76	100	128	111	119	48	84	32													14,605
	8.27	138	110	162	166	172	111	72	173	18												28,750
	8.52	43	185	183	255	183	168	134	99	2												31,295
	8.78	428	108	150	178	126	148	141	37	23	16											28,560
	9.28	737	351	322	237	96	178	103	11	52		1	64									45,085
	9.53	225	184	332	357	356	387	232	130	71	19											81,075
	9.79	192	166	200	239	317	311	323	206	164	66	296	3									85,905
	10.35	160	105	142	188	119	150	139	30	2	167	4	19	37								42,425
	10.80	138	128	138	230	136	118	74	121	35	2											27,540
	11.31	100	101	131	180	209	198	177	232	96	19	50										46,870
	11.56	92	85	73	60	42	32	22	1	124	3											13,113
	11.81	102	79	136	106	92	43	45														14,985
	12.32	176	74	79	29	33	12	16	20	1												8,425
	12.58	68	86	105	126	96	210	13	32	18												18,060
	12.83	125	46	99	93	127	125	55	78	2		31	3									21,830
	13.33	130	82	107	109	136	47	204	35													20,705
	13.59	133	76	64	42	33	37															7,430
	13.84	152	48	89	44	30	39	17	20	10	30	18										10,940
	14.35	196	66	46	70	24	6	28	1													7,390
	14.60	144	78	66	22	30	11	18	31	32	80											12,505
	14.86	296	70	116	93	47	31	18	61	71	2											18,700
	15.36	173	37	43	98	26	17	48														7,700
	15.61	129	81	149	73	132	147	44	30	13	16	1	63									25,315
YAG 30-C-20 ZU	12.53	66	48	36	37	29	61	3														5,415
	14.03	219	104	73	19	13	14	11				11	190	5								32,190
	14.28	77	119	144	124	48	98	46	1													15,995
	15.28	16	27	13	31	30	42	36	19													5,325
	15.78	99	71	83	59	48	15	52	5			32	6	125								27,225
	16.03	27	58	77	55	43	29															6,163
	16.28	71	40	63	6	43	1	13														3,635
	22.18	18	30	69	16	43	19	4	7													5,085
	24.18	47	70	48	84	30	5	27	8	11	18											9,380
	26.18	14	32	36	16	7		19	1													2,435
	29.93	178	136	68	99	29	53	22				32	3									18,395
YFNB 13-E-67 ZU	0.13	304	196	266	232	202	177	194	117	71	15											66,265
	0.88	732	463	650	825	1,021	1,030	1,436	1,673	1,787	1,071	679	2,281	4,568	1,300	1,293	3,992	248				2,733,730
	1.13	2,952	780	955	1,184	1,120	1,240	2,008	1,610	3,204	2,772	3,343	3,968	2,646	8,023	2,550	52					2,425,800
	1.63	1,080	887	951	948	939	873	1,318	1,033	1,008	2,891	1,881	2,216	2,100	1,673	159	118					1,348,650
	1.88	826	398	562	489	366	590	666	341	489	538	976	2,677	1,489	1,980	1,362	255					1,171,840
	2.63	310	262	308	180	65	69	67	30	82	178	245	310	223								149,035
	3.38	192	135	164	178	56	324	365	329	183	5		64	13	215							88,055
	4.63	200	38	27	21	30	24															4,390
	5.13	60	71	62	41	67	13	43														7,340
	5.88	63	53	16	31	25		45	1													4,960
	6.38	93	40	44	61	57	24	63	76	3												10,320
	6.88	121	90	56	78	19	11	11														6,705
	7.38	316	176	224	133	148	96	118	9	11	79	6										27,725

TABLE B.6 CONTINUED

Station	Mean Collection Time (T&D)	Number of Particles/ft³/hr/microns-interval — Mean Particle Size, microns																		μg/ft³-hr. (52.5 to 2,600 μ)
		52.5	72.5	92.5	112.5	132.5	155	195	235	275	315	365	485	605	725	845	1,000	1,400	1,800	2,200	2,600	
	hr																					
Shot Zuni																						16,645
	7.80	282	129	117	74	42	58	69	42	34												12,935
	8.63	161	135	120	60	90	35	33	1													35,320
	9.13	121	65	35	30	13	14	3	40	35	3				320	1						7,180
	9.80	153	57	67	46	18	32		33													2,730
	10.38	63	43	4	10	14	5	4														10,135
	11.68	170	72	52	25	30	52	65														12,205
	12.13	140	52	27	46	45	39	7	7	11		32	3									15,600
	12.38	129	101	112	56	69	36	47	123	9												15,750
	12.63	180	157	174	60	82	32	30	40													187,510
YFNB 29-C-71 ZU	0.20	3,930	1,033	895	1,030	1,037	709	1,016	333	1												183,685
	0.40	1,145	683	1,117	556	1,235	424	562	564	194		214	21									25,265
	0.59	130	66	93	63	34	76	31	46	6	91	4	11	60								4,634,015
	0.80	2,551	819	576	478	384	715	166	116	75			20	1,969	1,439	2,404	2,194	4,900	347			6,601,870
	0.99	886	1,667	1,526	1,775	2,071	1,166	2,178	1,671	1,279	813	3,236	5,943	11,197	1,818	9	4,724	4,200	317			3,025,355
	1.20	1,452	1,752	712	861	892	459	622	817	22	861	401	3,673	2,164	8,576	3,439	400	993				5,605,205
	1.24	2,760	1,127	771	1,350	714	1,021	1,330	1,228	242	2	1,782	10,195	4,069	2,667	1,191	10,328	158				2,006,905
	1.36	2,261	817	704	817	1,165	448	643	1,971	1,656	1,527	3,911	4,784	3,586	1,121							938,955
	1.60	3,692	355	643	551	313	418	316	886	748	694	2,836	2,129	2,928	6							2,054,285
	1.67	1,826	1,773	1,088	700	1,077	594	1,886	172	787	2,316	524	1,386	2,840	1,668	127	437	1,084				797,200
	1.78	1,079	636	1,109	771	506	261	744	707	76	694	2,011	1,236	1,209	447							6,417,165
	1.84	9,321	14,272	17,566	16,025	10,529	10,401	10,890	9,818	5,341	7,647	4,989	11,276	3,991	4,330	4,776						
Shot Texa																						92,670
YAG 40-B-7 TE	5.14	52	555	436	386	363	300	424	266	363	5											186,290
	5.64	192	870	950	681	647	918	1,000	544	575	59	49										120,420
	6.64	176	354	539	626	483	486	599	569	55	200	5.64										138,418
	7.14	204	516	645	597	628	517	634	416	432	55											62,460
	8.14	180	243	310	426	319	366	320	227	3												119,520
	8.64	41	270	513	655	627	494	471	409	51	294	117	19									73,898
	9.64	307	394	395	397	486	484	364	90	32												48,085
	10.14	196	266	283	276	260	198	176	122	47	73											24,660
	11.14	193	113	142	131	151	52	126	37	10	50											11,641
	11.64	56	124	192	176	260	160	101	174	99												47,540
	12.64	79	150	170	297	227	254	120	55	51	4	46	56									14,665
	13.14	110	103	109	61	25	41	85	2	2	49											10,570
	14.14	150	109	93	38	52	71	1														13,395
	14.64	56	121	91	174	89	55	16	31													43,170
	15.64	52	59	111	159	39	48	20	6	50					205	15						5,170
	16.14	39	60	42	66	13	15	4														18,750
	17.14	93	106	111	104	18	44	28	5	173	36											14,000
	17.64	92	115	128	51	70	46	20	35	32	2											465,420
YAG 39-C-20 TE	3.14	341	249	317	291	249	229	527	347	1,892	2,362	1,202	693	177	1							1,241,625
	4.14	1,147	1,235	1,815	2,021	3,350	3,848	5,043	6,017	8,787	4,743	787	21									819,065
	4.64	128	900	1,536	1,705	2,589	2,672	4,252	3,981	3,654	1,029	297	1	209	17							48,950
	6.16	229	148	148	130	192	143	109	339	36	143	1										20,635
LST 611-D-41 TE	11.78	65	288	261	99	128	37	73	1													3,095
	15.78	48	45	49	1		9	1														2,065
	16.58	36	23	33	19																	5,785
	17.38	10	60	92	64	2	23	17														13,990
	17.78	14	85	106	57	124	142	21														1,565,215
YFNB 29-H-78 TE	1.68	221	443	443	386	417	209	646	799	1,500	3,116	3,891	3,650	2,777	577	102						1,841,675
	3.68	524	162	245	226	209	341	613	1,383	3,175	3,394	6,464	1,924	18								223,860
	4.12	81	88	79	14	113	206	816	1,344	1,737	609	71	6	245								

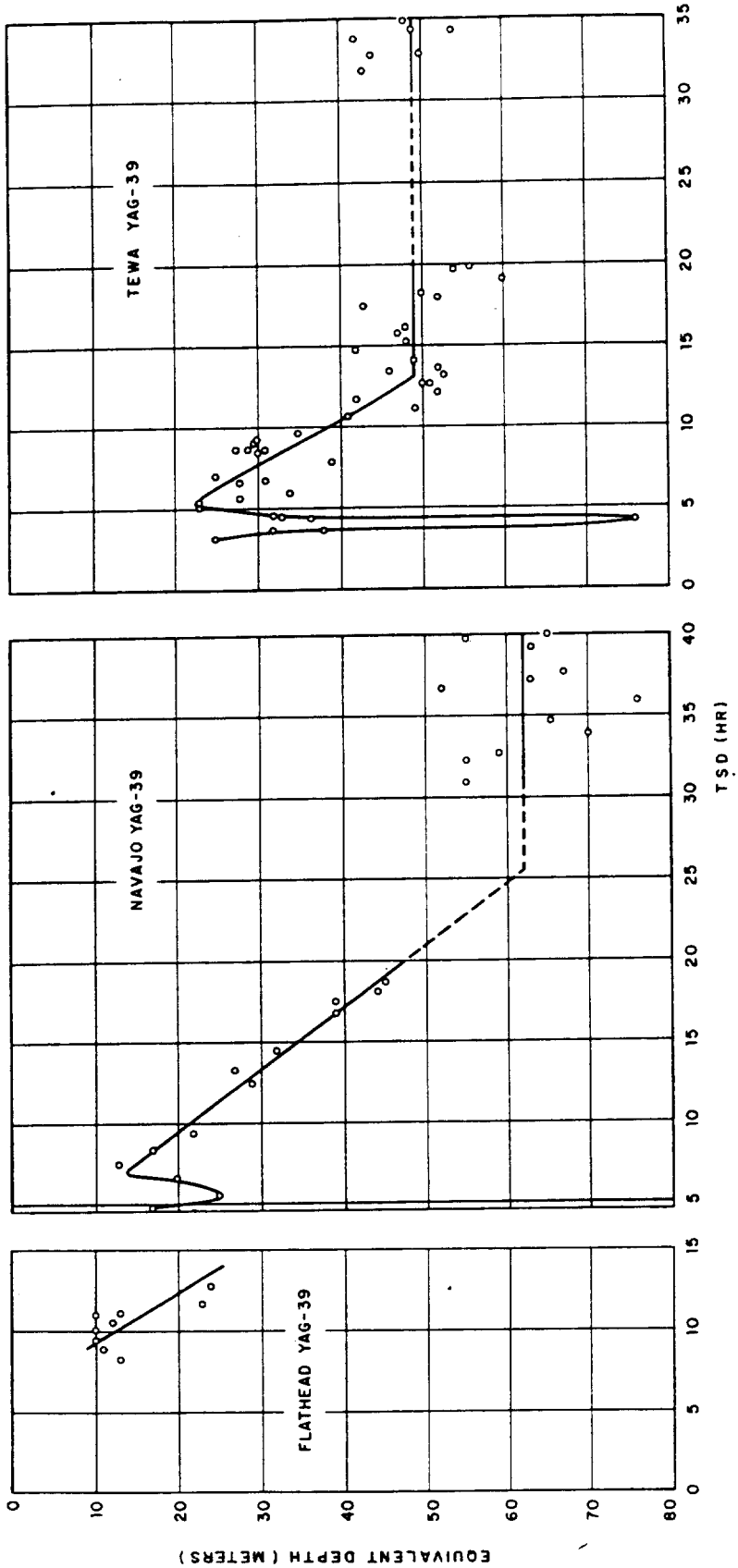

Figure B.1 Ocean-penetration rates, Shots Flathead, Navajo, and Tewa.

B.2 PHYSICAL, CHEMICAL, AND RADIOLOGICAL DATA

TABLE B.8 WEIGHT, ACTIVITY, AND FISSION VALUES FOR SIZED FRACTIONS FROM WHIM SAMPLE YFNB 29 ZU

Size Range	Weight		CIC Assay *			Fissions	
	Grams	Percent of Total	Value at H + 262 hr	Percent of Total	Specific Activity	Total	Per Gram
microns			10^{-5} ma		10^{-5} ma/gm	10^{14}	10^{14}
1,000	37.70	41.8	1.08	15.8	0.0286	21.	0.56
500 to 1,000	41.91	46.4	3.14	46.0	0.0749	60.	1.4
250 to 500	4.97	5.5	1.35	19.8	0.272	26.	5.2
100 to 250	3.51	3.9	0.734	10.7	0.209	14.	4.0
50 to 100	0.80	0.9	0.155	2.3	0.194	3.0	3.8
50	1.38	1.5	0.371	5.4	0.269	7.1	5.1
Total	90.27		6.83		0.0757	131.	1.5

* Response to 100 μg of Ra = 588×10^{-8} ma

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TABLE B. 9 REQUENCIES AND ACTIVITY CHARACTERISTICS OF PARTICLE SIZE AND PARTICLE TYPE GROUPS, SHOTS ZUNI AND TEWA

Size Group	Composite				Angular		Spherical		Agglomerates	
	Number of Particles	Activity			Frequency	Median Activity	Frequency	Median Activity	Frequency	Median Activity
		Minimum	Maximum	Median						
microns		well counts/min				well counts/min		well counts/min		well counts/min
YAG 40, Shot Zuni (nonrandom sample)										
Activities in well counts/min at H+12 hours										
31 to 42	8	78	11,354	835	6	1,255	2	387	0	—
43 to 60	20	33	833,600	6,985	13	6,797	5	6,631	2	423,448
61 to 84	37	58	459,321	12,213	27	11,871	10	17,450	0	—
85 to 102	6	4,460	50,608	32,434	6	32,434	0	—	0	—
103 to 120	42	69	525,449	41,412	24	25,083	12	87,795	6	56,728
121 to 145	13	19,063	683,362	77,622	4	24,771	8	304,282	1	58,585
146 to 170	34	3,686	771,326	113,209	12	65,067	15	259,931	7	114,803
171 to 200	24	3,816	1,675,122	166,982	13	92,070	11	457,315	0	—
201 to 240	27	25,565	1,310,318	168,795	22	152,710	2	420,669	3	221,828
241 to 260	25	32,178	726,969	145,494	22	131,935	0	—	3	217,674
261 to 315	9	53,105	493,500	223,424	6	181,658	0	—	3	365,685
316 to 382	1	—	—	1,774,146	1	1,774,146	0	—	0	—

Size Group	Composite					Angular			Spherical			Agglomerates		
	Number of Particles	Activity					Activity			Activity			Activity	
		Minimum	Maximum	Median	Group	Frequency	Median	Group	Frequency	Median	Group	Frequency	Median	Group
microns		well counts/min					well counts/min			well counts/min			well counts/min	
YAG 40, Shot Tewa														
Activities in well counts/min at H+300 hours														
11 to 33	5	0	3,222	372	4,209	4	218	987	1	3,222	3,222	0	—	—
34 to 66	28	0	80,483	1,596	191,972	17	1,860	169,221	3	3,424	9,532	8	1,125	13,219
67 to 99	49	0	47,181	7,103	519,360	24	8,293	241,291	11	14,776	194,762	14	4,111	83,307
100 to 132	61	0	48,757	15,129	998,547	38	16,889	685,795	8	8,932	66,648	15	13,504	246,104
133 to 165	78	4	53,806	17,243	1,564,034	40	15,247	678,500	8	10,827	88,475	30	26,224	797,059
166 to 198	46	0	387,697	25,877	1,628,637	30	24,503	803,776	4	3,757	30,261	12	37,363	794,600
199 to 231	19	19	99,094	34,435	693,709	12	34,078	402,758	0	—	—	7	34,591	290,951
232 to 264	16	94	136,203	49,444	849,701	4	34,571	125,221	0	—	—	12	53,599	724,480
265 to 297	10	8	122,553	55,708	599,034	2	43,855	87,709	1	8	8	7	72,695	511,317
298 to 330	14	19	155,625	55,282	926,556	2	63,499	126,985	0	—	—	12	55,282	799,571
331 to 363	1	—	—	64,086	64,086	0	—	—	0	—	—	1	64,086	64,086
364 to 396	2	3,176	138,856	71,016	142,032	0	—	—	1	3,176	3,176	1	138,856	138,856
397 to 429	0	—	—	—	—	—	—	—	—	—	—	-	—	—
430 to 462	3	1,267	39,308	10,997	51,572	2	6,132	12,264	1	39,308	39,308	0	—	—
463 to 495	0	—	—	—	—	—	—	—	—	—	—	-	—	—
496 to 528	2	92,688	197,740	145,214	290,428	0	—	—	0	—	—	2	145,214	290,428
Total	334				8,523,877	175		3,334,507	38		435,392	121		4,753,978
Contribution, pct						52.4		39.1	11.4		5.1	36.2		55.8

TABLE B.9 CONTINUED

Size Group	Composite						Angular			Spherical			Agglomerates		
	Number of Particles	Frequency with Zero Activity	Activity				Frequency	Activity		Frequency	Activity		Frequency	Activity	
			Minimum	Maximum	Median	Group		Median	Group		Median	Group		Median	Group
microns			well counts/min					well counts/min			well counts/min			well counts/min	
YAG 39, Shot Tewa															
Activities in well counts/min at H+300 hours															
10 to 21	20	7	0	232	18	1,161	5	0	57	15	61	1,104	0	—	—
22 to 30	51	19	0	477	14	3,115	34	11	1,532	16	68	1,583	1	0	0
31 to 42	59	27	0	872	16	5,263	45	9	3,554	3	0	307	11	22	1,402
43 to 60	63	17	0	5,451	54	12,481	31	64	1,335	3	469	9,913	29	27	1,233
61 to 84	49	8	0	2,180	64	11,992	29	61	5,666	0	—	—	20	64	6,326
85 to 120	41	4	0	8,994	317	80,647	25	543	48,395	1	739	739	15	98	31,513
121 to 170	9	1	0	15,755	494	32,430	6	676	16,170	1	494	494	2	7,883	15,766
171 to 240	5	0	1,958	27,120	16,402	80,525	2	10,757	21,514	1	27,120	27,120	2	15,946	31,891
241 to 340	3	0	5,658	76,906	34,344	166,908	3	34,344	116,908	0	—	—	0	—	—
341 to 480	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
481 to 680	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	300					344,522	180		215,131	40		41,260	80		88,131
Contribution, pct							60.0		62.4	13.4		12.0	26.7		25.6
LST 611, Shot Tewa															
Activities in well counts/min at H+300 hours															
10 to 21	39	18	0	161	19	1,897	22	13	1,017	17	19	880	0	—	—
22 to 30	23	10	0	212	11	939	22	24	929	1	10	10	0	—	—
31 to 42	32	12	0	343	41	2,269	27	44	1,820	3	29	106	2	172	343
43 to 60	26	13	0	1,112	10	2,436	20	19	2,261	4	0	118	2	29	57
61 to 84	12	2	0	7,909	108	14,161	7	198	9,598	1	128	128	4	53	4,435
85 to 120	14	3	0	11,941	1,994	47,417	8	4,201	35,755	1	3,282	3,282	5	0	8,380
121 to 170	20	3	0	17,640	8,699	176,014	14	11,323	150,672	0	—	—	6	883	25,342
171 to 240	6	1	0	39,681	11,438	82,752	5	8,798	68,472	0	—	—	1	14,280	14,280
241 to 340	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
341 to 480	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
481 to 680	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	172					327,885	125		270,524	27		4,524	20		52,837
Contribution, pct							72.7		82.5	15.7		1.4	11.6		16.1

TABLE B.9 CONTINUED

Size Group	Composite						Angular			Spherical			Agglomerates		
	Number of Particles	Frequency with Zero Activity	Activity				Frequency	Activity		Frequency	Activity		Frequency	Activity	
			Minimum	Maximum	Median	Group		Median	Group		Median	Group		Median	Group
microns			well counts/min					well counts/min			well counts/min			well counts/min	
YFNB 13, Shot Tewa															
Activities in well counts/min at H + 300 hours															
10 to 21	27	8	0	250	33	1,488	19	35	868	8	29	620	0	—	—
22 to 30	54	22	0	399	25	3,014	38	24	1,933	16	38	1,081	0	—	—
31 to 42	28	7	0	356	87	2,820	25	91	2,775	2	23	45	1	0	0
43 to 60	19	3	0	1,225	74	2,707	15	74	2,345	0	—	—	4	87	362
61 to 84	8	2	0	1,166	83	1,612	6	83	446	0	—	—	2	583	1,166
85 to 120	11	4	0	2,424	125	5,618	6	135	963	1	0	0	4	1,116	4,655
121 to 170	2	0	78	7,126	3,602	7,204	1	78	78	0	—	—	1	7,126	7,126
171 to 240	1	1	—	—	0	0	0	—	—	0	—	—	1	0	0
241 to 340	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
341 to 480	2	0	792,378	984,805	888,592	1,777,183	2	888,592	1,777,183	0	—	—	0	—	—
481 to 680	1	1	—	—	0	0	0	—	—	1	0	0	0	—	—
Total	153					1,801,646	114		1,786,591	27		1,746	12		13,309
Contribution, pct							74.5		99.2	17.6		0.1	7.8		0.7
YFNB 29, Shot Tewa															
Activities in well counts/min at H + 300 hours															
10 to 21	33	6	0	506	48	2,514	20	44	1,683	13	70	841	0	—	—
22 to 30	18	9	0	610	13	1,299	15	0	1,107	3	60	192	0	—	—
31 to 42	19	5	0	534	62	1,853	16	53	1,487	0	—	—	3	84	366
43 to 60	22	4	0	395,842	490	408,345	15	167	404,211	1	9	9	6	848	4,125
61 to 84	12	2	0	5,554	272	11,149	8	272	8,493	1	927	927	3	88	1,729
85 to 120	16	0	90	7,801	926	37,525	7	785	20,133	4	554	4,472	5	1,625	12,920
121 to 170	12	1	0	83,316	2,029	116,296	6	1,433	93,965	0	—	—	6	2,421	24 331
171 to 240	8	1	0	21,240	6,186	55,882	3	6,590	19,723	1	21,240	21,240	4	2,728	14,919
241 to 340	9	0	3,614	619,448	61,653	1,445,691	6	112,640	720,292	1	61,653	61,653	2	331,873	663,746
341 to 480	13	0	6,204	1,698,631	71,445	3,265,945	9	142,176	2,918,445	3	71,446	341,296	1	6,204	6,204
481 to 680	7	0	50,641	489,310	184,800	1,610,536	5	184,800	1,086,799	0	—	—	2	261,869	523,737
Total	169					6,959,045	110		5,276,338	27		430,630	32		1,252,077
Contribution, pct							65.1		78.8	16.0		6.0	18.9		18.0

TABLE B.10 SURVEY OF SHOT TEWA REAGENT FILMS FOR SLURRY PARTICLE TRACES*

Station and Instrument	Number of Reagent Film Examined †	Serial Number of Tray Having Slurry Particles	Number of Slurry Particles	
			Definite	Doubtful
YAG 40-A-1	10	—	0	0
YAG 40-A-2	7	3006		4
		2988		2
YAG 40-B-7	28	—	0	0
YAG 39-C-20	27	3930	5	
		3931	3	
		3927	1	
		3924		‡
YAG 39-C-24	27	3721		2
		3727		4
YAG 39-C-33	27	3828		‡
		3829		‡
LST 611-D-37	27	3211		1
		3224		1
		3231		1
LST 611-D-41	27	3394	1	
		3393	1	
		3401		1
LST 611-D-50	12	—	0	0
YFNB 29-G-71	5	3433		~57§
YFNB 29-H-78	0	—	—	—
YFNB 13-E-57	5	—	0	0
How F-64	17	—	0	0
Totals	219	17	11	73

* Private communication from N. H. Farlow.
† Every reagent film in each IC examined.
‡ Covered with contaminated rain.
§ Primarily splashes.

TABLE B. 11 TOTAL ACTIVITY AND MASS OF SLURRY FALLOUT

Collecting Station	Shot Flathead			Shot Navajo		
	Total Activity *	Total Mass NaCl	Total Number Droplets	Total Activity *	Total Mass NaCl	Total Number Droplets
	(counts/min)/ft^2 × 10^6	μg/ft^2	number/ft^2	(counts/min)/ft^2 × 10^6	μg/ft^2	number/ft^2
YFNB 13-E-57	†	—	—	51.0	125,000	16,000
YFNB 29-H-78	45.9	10,700	178,000	3.6	9,000	1,150
YAG 39-C-20	8.4	300	714	21.2	13,200	1,740
YAG 39-C-24	1.6	57	135	†	—	—
LST 611-D-37	19.6	690	1,640	†	—	—
LST 611-D-50	2.6	92	219	†	—	—
YAG 40-A-1	13.1	460	489	9.2	4,400	15,000
YAG 40-A-2	11.5	410	436	†	—	—
YAG 40-B-7	6.5	230	460	†	—	—

* Photon count in well counter at H + 12 hours.

† Values unavailable due to instrument malfunction or incomplete sampling run.

TABLE B.19 AIR-IONIZATION RATES OF INDUCED PRODUCTS FOR 10^4 FISSIONS/FT^2, PRODUCT/FISSION RATIO OF UNITY (SC)

Product half life is given directly below the nuclide symbol. Values are in r/hr and the number in parentheses indicates the number of zeros between the decimal point and the first significant figure.

Age		Na^{24}	Cr^{51}	Mn^{54}	Mn^{56}	Fe^{59}	Co^{57}	Co^{58}	Co^{60}	Cu^{64}	Sb^{122}
	hr	15h	27.2d	304d	2.58h	45.2d	270d	72d	5.27y	12.8h	2.75d
45.8 minutes	0.763	(8)250	(12)539	(11)118	(8)547	(10)119	(12)218	(11)598	(12)575	(9)174	(10)740
1.12 hours	1.12	(8)246	(12)539	(11)118	(8)496	(10)119	(12)218	(11)598	(12)575	(9)171	(10)737
1.64	1.64	(8)240	(12)539	(11)118	(8)432	(10)118	(12)218	(11)598	(12)575	(9)166	(10)735
2.40	2.40	(8)232	(12)538	(11)118	(8)352	(10)118	(12)218	(11)598	(12)575	(9)160	(10)727
3.52	3.52	(8)220	(12)538	(11)118	(8)261	(10)118	(12)218	(11)597	(12)575	(9)150	(10)719
5.16	5.16	(8)204	(12)537	(11)118	(8)167	(10)118	(12)218	(11)597	(12)575	(9)137	(10)707
7.56	7.56	(8)182	(12)535	(11)118	(9)878	(10)118	(12)218	(11)597	(12)575	(9)121	(10)689
11.1	11.1	(8)155	(12)533	(11)118	(9)341	(10)118	(12)218	(11)596	(12)575	(10)997	(10)666
16.2	16.2	(8)123	(12)531	(11)118	(10)865	(10)117	(12)218	(11)594	(12)575	(10)756	(10)630
23.8	23.8	(9)887	(12)526	(11)118	(10)112	(10)117	(12)218	(11)592	(12)575	(10)502	(10)581
1.45 days	34.8	(9)524	(12)520	(11)118	(12)583	(10)116	(12)217	(11)590	(12)575	(10)277	(10)517
2.13	51.1	(9)244	(12)511	(11)118	(14)751	(10)115	(12)217	(11)586	(12)575	(10)115	(10)438
3.12	74.9	(10)823	(12)498	(11)118	(16)126	(10)113	(12)217	(11)580	(12)575	(11)319	(10)340
4.57	109.7	(10)166	(12)480	(11)117		(10)111	(12)216	(11)572	(12)574	(12)488	(10)236
6.70	160.8	(11)156	(12)455	(11)117		(10)107	(12)215	(11)561	(12)574	(13)309	(10)138
9.82	235.7	(13)478	(12)420	(11)116		(10)102	(12)213	(11)545	(12)573	(15)554	(11)630
14.4	345.6	(15)321	(12)374	(11)115		(11)951	(12)210	(11)521	(12)572	(17)138	(11)198
21.1	506.4		(12)315	(11)113		(11)858	(12)207	(11)488	(12)571		(12)366
30.9	741.6		(12)246	(11)110		(11)738	(12)202	(11)444	(12)569		(13)310
45.3	1,087		(12)170	(11)107		(11)592	(12)194	(11)387	(12)566		(15)837
66.4	1,594		(13)994	(11)102		(11)428	(12)184	(11)315	(12)562		(17)399
97.3	2,335		(13)452	(12)949		(11)267	(12)170	(11)235	(12)556		
143	3,432		(13)141	(12)855		(11)132	(12)151	(11)151	(12)547		
208	4,992		(14)272	(12)738		(12)488	(12)128	(12)808	(12)534		
301	7,224		(15)252	(12)596		(12)117	(12)101	(12)330	(12)516		

TABLE B.19 CONTINUED

Age	hr	Sb^{124} 60d	Ta^{180} 8.15h	Ta^{182} 114d	Au^{198} 2.7d	Pb^{203} 52h	U^{237} 6.75d	U^{239} 23.5m	Np^{239} 56h	Np^{240} 7.3m
45.8 minutes	0.763	(10)133	(10)703	(11)513	(10)711	(10)501	(10)126	(9)507	(10)258	(9)290
1.12 hours	1.12	(10)133	(10)684	(11)513	(10)709	(10)500	(10)125	(9)270	(10)300	(9)287
1.64	1.64	(10)133	(10)652	(11)513	(10)704	(10)496	(10)125	(9)107	(10)326	(9)281
2.40	2.40	(10)133	(10)614	(11)513	(10)699	(10)490	(10)125	(10)280	(10)338	(9)270
3.52	3.52	(10)133	(10)557	(11)513	(10)689	(10)484	(10)124	(11)386	(10)337	(9)256
5.16	5.16	(10)132	(10)484	(11)513	(10)677	(10)474	(10)123	(12)212	(10)332	(9)236
7.56	7.56	(10)132	(10)394	(11)513	(10)660	(10)459	(10)122	(14)301	(10)321	(9)210
11.1	11.1	(10)132	(10)292	(11)512	(10)636	(10)437	(10)120	(17)577	(10)308	(9)176
16.2	16.2	(10)132	(10)190	(11)511	(10)603	(10)408	(10)118		(10)289	(9)137
23.8	23.8	(10)131	(11)992	(11)510	(10)554	(10)370	(10)113		(10)263	(10)944
1.45 days	34.8	(10)131	(11)388	(11)509	(10)494	(10)319	(10)108		(10)230	(10)550
2.13	51.1	(10)130	(12)973	(11)507	(10)415	(10)256	(10)101		(10)188	(10)248
3.12	74.9	(10)128	(12)129	(11)504	(10)321	(10)186	(11)914		(10)140	(11)767
4.57	109.7	(10)126	(14)668	(11)499	(10)221	(10)118	(11)789		(11)909	(11)139
6.70	160.8	(10)123	(16)872	(11)493	(10)128	(11)595	(11)634		(11)482	(12)113
9.82	235.7	(10)119	(18)149	(11)484	(11)576	(11)219	(11)458		(11)191	(14)290
14.4	345.6	(10)112		(11)470	(11)178	(12)507	(11)287		(12)491	(16)126
21.1	506.4	(10)104		(11)452	(12)318	(13)594	(11)143		(13)670	
30.9	741.6	(11)929		(11)426	(13)258	(14)259	(12)529		(14)364	
45.3	1,087	(11)786		(11)390	(15)643	(16)256	(12)121		(16)509	
66.4	1,594	(11)616		(11)343	(17)277	(19)304	(13)137		(19)954	
97.3	2,335	(11)431		(11)284	(21)995		(15)578			
143	3,432	(11)254		(11)215			(17)520		-	
208	4,992	(11)120		(11)145			(20)742			
301	7,224	(12)410		(12)825						

TABLE B.21 GAMMA-RAY PROPERTIES OF CLOUD AND FALLOUT SAMPLES BASED ON GAMMA-RAY SPECTROMETRY (NRB)

Cloud samples are particulate collections in small pieces of filter paper. All fallout samples are aliquots of OCC sample solutions except those indicated as solid, which are aliquoted undissolved, by weight.

Sample Designation	Age	Number of Fissions	Average Energy $\bar{E}$	mr/hr at 3 ft, (SC), for N_f fissions/ft²			Total Photons per sec	Photons/sec / 10^6 fission
				By Line E	By $\bar{E}$	Error Using $\bar{E}$		
	hr	N_f	kev			pct	$\times 10^6$	
Shot Cherokee								
Standard cloud sample								
1	53	8.82×10^{12}	294	20.64	21.15	2.47	11.62	1.317
2	74		299	17.18	17.66	2.79	9.65	1.094
3	98		310	11.94	12.15	1.76	6.53	0.740
4	166		337	7.88	8.36	6.09	4.04	0.458
5	191		379	6.36	6.87	8.02	2.91	0.330
6	215		391	5.82	6.24	7.22	2.59	0.294
7	242		417	5.00	5.40	8.00	2.10	0.238
8	262.5		446	4.44	4.81	8.33	1.75	0.198
9	335		490	3.46	3.81	10.12	1.26	0.143
10	405.5		509	2.85	3.10	8.77	0.99	0.112
11	597.5		626	1.82	1.98	8.79	0.52	0.059
Shot Zuni								
Standard cloud sample								
1	53	9.84×10^{12}	477	62.47	67.36	7.83	22.98	2.335
2	69		413	49.92	52.89	5.95	20.82	2.116
3	93		422	37.90	39.64	4.59	15.28	1.553
4	117		433	28.45	30.12	5.87	11.31	1.149
5	192		437	16.71	17.78	6.40	6.62	0.673
6	242		485	13.05	14.03	7.51	4.71	0.479
7	454		589	6.28	6.84	8.92	1.90	0.193
8	790		624	3.29	3.52	6.99	0.93	0.095
9	1,295		559	1.56	1.65	6.45	0.48	0.049
How F-61								
1	240	1.00×10^{13}	210	1.72	1.73	0.58	1.34	0.134
2	460		247	0.64	0.65	1.56	0.43	0.043
YAG 40-B-19								
2	266	3.71×10^{14}	419	181.18	193.33	6.71	74.98	0.202
3	362	(solid)	480	110.18	119.14	8.13	40.4	0.109
4	459		508	105.62	113.95	7.89	36.29	0.098
5	790		606	51.07	54.87	7.44	14.83	0.040
6	983		731	53.46	56.63	5.93	12.87	0.035
6'	987		706	49.24	51.89	5.38	12.21	0.033
7	1,298		710	38.09	40.91	7.40	9.58	0.026
8	1,728.5		706	28.41	30.05	5.77	7.07	0.019
9	2,568.5		711	18.85	19.60	3.98	4.60	0.012
10	2,810		731	14.50	16.02	10.48	3.65	0.010
How F-67								
1	359	7.29×10^{13}	318	10.66	11.38	6.75	5.82	0.080
2	460.5	(solid)	385	8.31	8.73	5.05	3.69	0.051
3	981		610	4.38	4.53	3.42	1.20	0.016
4	1,606		646	3.54	3.64	2.82	0.93	0.013
YAG 40-B-6								
1	383	5.08×10^{13}	444.76	12.92	13.79	6.73	5.05	0.10
2	458		457.16	9.43	10.07	6.79	3.58	0.070
3	982		656.58	4.49	4.76	6.01	1.2	0.024
4	1,605		695.12	3.47	3.60	3.75	0.86	0.017

pgs 235 thru 236 Deleted

TABLE B.21 CONTINUED

Sample Designation	Age	Number of Fissions	Average Energy $\bar{E}$	mr/hr at 3 ft, (SC), for N_f fissions/ft^2			Total Photons per sec	Photons/sec / 10^6 fissions
				By Line E	By $\bar{E}$	Error Using $\bar{E}$		
	hr	N_f	kev			pct	$\times 10^6$	
Shot Flathead								
Standard cloud sample								
2	96.5	2.79×10^{13}	335.88	61.12	62.88	2.88	30.49	1.093
3	195		402.04	27.94	29.18	4.44	11.82	0.424
4	262		489.13	18.94	20.36	7.50	6.44	0.231
5	334		535.96	16.31	17.73	8.39	5.39	0.193
6	435		573.61	11.06	12.01	8.59	3.43	0.123
7	718		661.49	6.08	6.56	7.89	1.64	0.059
8	1,031		708.63	3.16	3.42	8.23	0.80	0.029
9	1,558		678.61	2.08	2.21	6.25	0.54	0.019
YAG 39-C-36								
1	119.5	1.06×10^{13} *	306.28	14.77	15.20	2.91	8.08	0.762
2	598	(solid)	532.08	1.99	2.17	9.05	0.65	0.061
YFNB 13-E-56								
1	337	4.44×10^{13}	515.74	13.38	14.52	8.52	4.58	0.103
2	722	(solid)	659.93	5.96	6.38	7.05	1.60	0.036
3	1,032		681.15	3.71	3.95	6.47	0.96	0.022
4	1,538		699.09	1.77	1.85	4.52	0.44	0.010
YFNB 13-E-54								
1	357	3.81×10^{13}	389.11	12.41	13.52	8.94	5.66	0.149
2	720		549.26	5.08	5.51	8.46	1.64	0.043
3	1,034.5		672.88	3.55	3.73	5.07	0.92	0.024
4	1,538.5		662.90	1.94	2.00	3.09	0.50	0.013
Shot Navajo								
Standard cloud sample								
1	51.5	3.46×10^{12}	567.68	20.50	22.97	12.05	6.62	1.913
2	69		483.11	13.32	14.65	9.98	4.94	1.428
3	141		396.37	5.00	5.31	6.70	2.18	0.630
4	191		482.27	4.84	5.18	7.02	1.75	0.506
5	315		604.29	2.13	2.32	8.92	0.63	0.182
6	645.5		585.68	0.72	0.78	8.33	0.22	0.064
YFNB 13-E-54								
1	197	2.40×10^{13}	496.15	9.34	9.96	6.63	3.27	0.136
3	311	(solid)	658.79	8.15	8.74	7.24	2.19	0.091
4	360		710.86	8.36	8.92	6.70	2.09	0.087
5	551		818.31	5.69	6.01	5.62	1.24	0.052
YAG 39-C-36								
1	216	—	436.11	1.92	2.05	6.77	0.76	—
2	260	—	549.03	0.99	1.04	5.05	0.31	—
YFNB 13-E-56								
1	237.5	6.50×10^{12}	518.87	4.40	4.75	7.95	1.49	0.229
2	359		676.86	2.98	3.21	7.72	0.78	0.120
3	551		688.41	1.58	1.70	7.59	0.41	0.063
YAG 39-C-21	309.5	3.90×10^{12}	604.65	1.96	2.10	7.14	0.57	0.146

TABLE B. 21 CONTINUED

Sample Designation	Age	Number of Fissions	Average Energy $\bar{E}$	mr/hr at 3 ft, (SC), for N_f fissions/ft^2			Total Photons per sec	Photons/sec / 10^6 fission
				By Line E	By $\bar{E}$	Error Using $\bar{E}$		
	hr	N_f	kev			pct	$\times 10^6$	
Shot Tewa								
Standard cloud sample								
1	71.5	4.71×10^{13}	401.33	127.1	131.64	3.57	53.42	1.134
2	93.5	↓	378.45	94.25	97.60	3.55	42.00	0.892
3	117.0		377.50	75.64	79.29	4.83	34.21	0.726
4	165.0		373.02	62.27	65.71	5.52	28.69	0.609
5	240.5		460.73	44.21	47.38	7.17	16.75	0.356
6	333.5		489.33	24.88	27.01	8.56	8.99	0.191
7	429.0		548.48	18.47	20.16	9.15	6.00	0.127
8	578.5		629.64	12.70	13.83	8.90	3.62	0.077
9	765.5		664.50	10.40	11.18	7.50	2.78	0.059
10	1,269.0		646.80	4.94	5.21	5.47	1.33	0.028
11	1,511.0		656.33	4.13	4.33	4.84	1.09	0.023
YAG 39-C-36								
1	173.0	1.77×10^{13}	345.84	16.78	17.41	3.75	8.2	0.463
2	237.0	(solid)	355.39	12.27	12.81	4.40	5.87	0.332
3	312.0	↓	397.60	7.99	8.42	5.38	3.45	0.195
4	407.0		416.92	5.69	6.04	6.15	2.36	0.133
5	576.0		571.65	3.95	4.22	6.84	1.21	0.068
YFNB 13-E-56								
1	238	3.40×10^{13}	270.06	11.84	12.24	3.38	7.38	0.217
2	335	(solid)	295.56	7.16	7.46	4.19	4.11	0.121
3	413	↓	327.78	4.85	5.07	4.54	2.52	0.074
4	578		434.03	3.82	4.00	4.71	1.50	0.044
5	1,270		542.00	1.64	1.67	1.83	0.50	0.015
6	1,512		563.09	1.16	1.17	0.86	0.34	0.010
Y3-T-1C-D	243	—	360.31	1.01	1.06	4.95	0.48	—
YFNB 13-E-54								
1	263	2.38×10^{13}	306.39	6.87	7.21	4.95	3.83	0.161
2	316	↓	330.48	4.61	4.85	5.21	2.39	0.100
3	408.5		373.45	3.49	3.71	6.30	1.62	0.068
4	624.0		484.14	1.76	1.90	7.95	0.64	0.027
YAG 39-C-21								
1	287	1.82×10^{14}	427.26	68.72	73.34	6.72	27.96	0.154
3	411	↓	465.32	40.67	43.65	7.33	15.28	0.084
4	626		564.53	23.70	25.53	7.72	7.40	0.041
5	767		605.21	17.33	18.66	7.67	5.07	0.028
6	1,271		672.61	9.75	10.16	4.21	2.51	0.014
7	1,513		669.95	7.83	8.08	3.19	2.00	0.011

TABLE B.22 COMPUTED DOGHOUSE DECAY RATES OF FALLOUT AND CLOUD SAMPLES

Activities are computed in units of (counts/sec)/10^4 fissions for a point source in a covered OCC tray on the floor of the counter. The product/fission ratio for the induced product activities (IP) appears directly below the nuclide symbol. Induced activities are summed and added to the fission product activity (FP) for the total computed count rate. Numbers in parentheses denote the number of zeros between the decimal point and the first significant figure, e.g., (3)291 = 0.000291.

Age		Na^{24}	Cr^{51}	Mn^{54}	Mn^{56}	Fe^{59}	Co^{57}	Co^{58}	Co^{60}	Cu^{64}	Sb^{122}	Sb^{124}
	hr	0.0109	0.00173	0.011	0.011 *	0.00041	0.0031	0.0036	0.00264	0.0090	0.0252 †	0.0084
Shot Zuni, Average Lagoon-Area Composition:												
45.8 min	0.763	(6)119	(10)419	(9)175	(6)544	(10)401	(10)921	(9)319	(10)111	(7)356	(7)335	(8)123
1.12 hrs	1.12	(6)117	(10)419	(9)175	(6)494	(10)401	(10)921	(9)319	(10)111	(7)347	(7)335	(8)123
1.64 hrs	1.64	(6)114	(10)419	(9)175	(6)430	(10)401	(10)920	(9)319	(10)111	(7)338	(7)333	(8)123
2.40 hrs	2.40	(6)110	(10)419	(9)175	(6)351	(10)400	(10)920	(9)319	(10)111	(7)326	(7)330	(8)123
3.52 hrs	3.52	(6)105	(10)419	(9)175	(6)260	(10)400	(10)920	(9)318	(10)111	(7)306	(7)328	(8)123
5.16 hrs	5.16	(7)970	(10)417	(9)175	(6)166	(10)400	(10)920	(9)318	(10)111	(7)280	(7)320	(8)123
7.56 hrs	7.56	(7)868	(10)415	(9)175	(7)874	(10)399	(10)920	(9)318	(10)111	(7)246	(7)312	(8)122
11.1 hrs	11.1	(7)738	(10)415	(9)175	(7)340	(10)398	(10)919	(9)318	(10)111	(7)203	(7)302	(8)122
16.2 hrs	16.2	(7)583	(10)412	(9)175	(8)861	(10)397	(10)919	(9)317	(10)111	(7)154	(7)285	(8)122
23.8 hrs	23.8	(7)409	(10)408	(9)175	(8)112	(10)395	(10)919	(9)316	(10)111	(7)103	(7)265	(8)121
1.45 days	34.8	(7)249	(10)405	(9)175	(10)581	(10)392	(10)917	(9)314	(10)111	(8)564	(7)235	(8)121
2.13 days	51.1	(7)117	(10)398	(9)175	(12)748	(10)388	(10)916	(9)312	(10)111	(8)234	(7)199	(8)120
3.12 days	74.9	(8)391	(10)388	(9)174		(10)382	(10)913	(9)309	(10)111	(9)651	(7)154	(8)118
4.57 days	109.7	(9)787	(10)374	(9)174		(10)374	(10)910	(9)305	(10)111	(10)936	(7)107	(8)116
6.70 days	160.8	(10)743	(10)353	(9)173		(10)362	(10)905	(9)299	(10)110	(11)629	(8)625	(8)113
9.82 days	235.7	(11)228	(10)327	(9)172		(10)345	(10)898	(9)290	(10)110	(12)112	(8)285	(8)109
14.4 days	345.6		(10)291	(9)169		(10)321	(10)887	(9)278	(10)110		(9)897	(8)104
21.1 days	506.4		(10)246	(9)167		(10)290	(10)872	(9)260	(10)110		(9)166	(9)958
30.9 days	741.6		(10)190	(9)164		(10)250	(10)851	(9)237	(10)109		(10)141	(9)857
45.3 days	1,087		(10)132	(9)158		(10)200	(10)820	(9)206	(10)109		(12)381	(9)727
66.4 days	1,594		(11)772	(9)151		(10)145	(10)777	(9)168	(10)108			(9)569
97.3 days	2,335		(11)351	(9)141		(11)902	(10)717	(9)125	(10)107			(9)398
143 days	3,432		(11)110	(9)126		(11)447	(10)638	(10)803	(10)105			(9)235
208 days	4,992		(12)211	(9)109		(11)165	(10)540	(10)432	(10)102			(9)111
301 days	7,224		(13)195	(10)882		(12)396	(10)425	(10)176	(11)990			(10)379

TABLE B.22 CONTINUED

Age	hr	Ta^{180} 0.0691‡	Ta^{182} 0.0326	Pb^{203} 0.050	Sum of FP
Shot Zuni, Average Lagoon-Area Composition					
45.8 min	0.763	(6)871	(8)355	(6)170	(4)6034
1.12 hrs	1.12	(6)850	(8)355	(6)170	(4)3946
1.64 hrs	1.64	(6)808	(8)355	(6)168	(4)2429
2.40 hrs	2.40	(6)760	(8)355	(6)167	(4)1469
3.52 hrs	3.52	(6)690	(8)355	(6)164	(5)8828
5.16 hrs	5.16	(6)599	(8)355	(6)161	(5)5243
7.56 hrs	7.56	(6)489	(8)355	(6)156	(5)3248
11.1 hrs	11.1	(6)362	(8)355	(6)148	(5)2210
16.2 hrs	16.2	(6)235	(8)355	(6)139	(5)1519
23.8 hrs	23.8	(6)123	(8)352	(6)126	(6)9903
1.45 days	34.8	(7)481	(8)352	(6)108	(6)5959
2.13 days	51.1	(7)121	(8)352	(7)870	(6)3336
3.12 days	74.9	(8)160	(8)349	(7)635	(6)1879
4.57 days	109.7	(10)829	(8)346	(7)400	(6)1133
6.70 days	160.8	(11)108	(8)342	(7)202	(7)6834
9.82 days	235.7		(8)336	(8)745	(7)4159
14.4 days	345.6		(8)326	(8)172	(7)2598
21.1 days	506.4		(8)313	(9)202	(7)1749
30.9 days	741.6		(8)295	(11)880	(7)1249
45.3 days	1,087		(8)270	(13)850	(8)9022
66.4 days	1,594		(8)238		(8)6424
97.3 days	2,335		(8)197		(8)4413
143 days	3,432		(8)149		(8)2726
208 days	4,992		(8)100		(8)1401
301 days	7,224		(9)570		(9)5868

TABLE B. 22 CONTINUED

Age		Na^{24}	Cr^{51}	Mn^{54}	Mn^{56}	Fe^{59}	Co^{57}	Co^{58}	Co^{60}	Cu^{64}	Sb^{122}	Sb^{124}
	hr	0.0109	0.00173	0.011	0.011*	0.00041	0.0031	0.0036	0.00264	0.0090	0.219	0.073
Shot Zuni, Cloud Composition:												
45.8	min	0.763	(6)119	(10)419	(9)175	(6)544	(10)401	(10)921	(9)319	(10)111	(7)356	(6)291	(7)107
1.12	hrs	1.12	(6)117	(10)419	(9)175	(6)494	(10)401	(10)921	(9)319	(10)111	(7)347	(6)291	(7)107
1.64	hrs	1.64	(6)114	(10)419	(9)175	(6)430	(10)401	(10)920	(9)319	(10)111	(7)338	(6)289	(7)107
2.40	hrs	2.40	(6)110	(10)419	(9)175	(6)351	(10)400	(10)920	(9)319	(10)111	(7)326	(6)287	(7)107
3.52	hrs	3.52	(6)105	(10)419	(9)175	(6)260	(10)400	(10)920	(9)318	(10)111	(7)306	(6)285	(7)107
5.16	hrs	5.16	(7)970	(10)417	(9)175	(6)166	(10)400	(10)920	(9)318	(10)111	(7)280	(6)278	(7)107
7.56	hrs	7.56	(7)868	(10)415	(9)175	(7)874	(10)399	(10)920	(9)318	(10)111	(7)246	(6)272	(7)106
11.1	hrs	11.1	(7)738	(10)415	(9)175	(7)340	(10)398	(10)919	(9)318	(10)111	(7)203	(6)263	(7)106
16.2	hrs	16.2	(7)583	(10)412	(9)175	(8)861	(10)397	(10)919	(9)317	(10)111	(7)154	(6)247	(7)106
23.8	hrs	23.8	(7)409	(10)408	(9)175	(8)112	(10)395	(10)919	(9)316	(10)111	(7)103	(6)230	(7)105
1.45	days	34.8	(7)249	(10)405	(9)175	(10)581	(10)392	(10)917	(9)314	(10)111	(8)564	(6)204	(7)105
2.13	days	51.1	(7)117	(10)398	(9)175	(12)748	(10)388	(10)916	(9)312	(10)111	(8)234	(6)173	(7)104
3.12	days	74.9	(8)391	(10)388	(9)174		(10)382	(10)913	(9)309	(10)111	(9)651	(6)134	(7)103
4.57	days	109.7	(9)787	(10)374	(9)174		(10)374	(10)910	(9)305	(10)111	(10)936	(7)931	(7)101
6.70	days	160.8	(10)743	(10)353	(9)173		(10)362	(10)905	(9)299	(10)110	(11)629	(7)543	(8)985
9.82	days	235.7	(11)228	(10)327	(9)172		(10)345	(10)898	(9)290	(10)110	(12)112	(7)247	(8)949
14.4	days	345.6		(10)291	(9)169		(10)321	(10)887	(9)278	(10)110		(8)780	(8)905
21.1	days	506.4		(10)246	(9)167		(10)290	(10)872	(9)260	(10)110		(8)144	(8)832
30.9	days	741.6		(10)190	(9)164		(10)250	(10)851	(9)237	(10)109		(9)122	(8)745
45.3	days	1,087		(10)132	(9)158		(10)200	(10)820	(9)206	(10)109		(11)331	(8)631
66.4	days	1,594		(11)772	(9)151		(10)145	(10)777	(9)168	(10)108		(13)162	(8)494
97.3	days	2,335		(11)351	(9)141		(11)902	(10)717	(9)125	(10)107			(8)346
143	days	3,432		(11)110	(9)126		(11)447	(10)638	(10)803	(10)105			(8)204
208	days	4,992		(12)211	(9)109		(11)165	(10)540	(10)432	(10)102			(9)964
301	days	7,224		(13)195	(10)882		(12)396	(10)425	(10)176	(11)990			(9)329

TABLE B.22 CONTINUED

Age		Ta^{180}	Ta^{182}	Pb^{203}	Sum of FP
hr		0.0411	0.0194	0.050	
Shot Zuni, Cloud Composition:					
45.8	min	0.763	(6)518	(8)211	(6)170	(3)1658
1.12	hrs	1.12	(6)506	(8)211	(6)170	(3)1068
1.64	hrs	1.64	(6)481	(8)211	(6)168	(4)6723
2.40	hrs	2.40	(6)452	(8)211	(6)167	(4)4223
3.52	hrs	3.52	(6)411	(8)211	(6)164	(4)2706
5.16	hrs	5.16	(6)356	(8)211	(6)161	(4)1788
7.56	hrs	7.56	(6)291	(8)211	(6)156	(4)1221
11.1	hrs	11.1	(6)215	(8)211	(6)148	(5)8454
16.2	hrs	16.2	(6)140	(8)211	(6)139	(5)5677
23.8	hrs	23.8	(7)732	(8)210	(6)126	(5)3650
1.45	days	34.8	(7)286	(8)210	(6)108	(5)2302
2.13	days	51.1	(8)719	(8)210	(7)870	(5)1428
3.12	days	74.9	(9)949	(8)208	(7)635	(6)8938
4.57	days	109.7	(10)493	(8)206	(7)100	(6)5891
6.70	days	160.8	(12)641	(8)204	(7)202	(6)3971
9.82	days	235.7		(8)200	(8)745	(6)2667
14.4	days	345.6		(8)194	(8)172	(6)1728
21.1	days	506.4		(8)186	(9)202	(6)1073
30.9	days	741.6		(8)175	(11)880	(7)6306
45.3	days	1,087		(8)161	(13)850	(7)3421
66.4	days	1,594		(8)141		(7)1734
97.3	days	2,335		(8)117		(8)9067
143	days	3,432		(9)889		(8)1954
208	days	4,992		(9)596		(8)2502
301	days	7,224		(9)340		(8)1114

TABLE B.22 CONTINUED

Age		Na^{24}	Cr^{51}	Nm^{54}	Nm^{56}	Fe^{59}	Co^{57}	Co^{58}	Co^{60}	Cu^{64}	Ta^{180}
	hr	0.0314	0.0120	0.10	0.094	0.0033	0.00224	0.00193	0.0087	0.0278	0.038 †
Shot Navajo, Average Fallout Composition:											
45.8	min	0.763	(6)342	(9)290	(8)159	(5)465	(9)322	(10)665	(9)171	(10)364	(6)110	(6)479
1.12	hrs	1.12	(6)336	(9)290	(8)159	(5)422	(9)322	(10)665	(9)171	(10)364	(6)107	(6)467
1.64	hrs	1.64	(6)330	(9)290	(8)159	(5)368	(9)322	(10)665	(9)171	(10)364	(6)104	(6)445
2.40	hrs	2.40	(6)317	(9)290	(8)159	(5)300	(9)322	(10)665	(9)171	(10)364	(6)101	(6)418
3.52	hrs	3.52	(6)301	(9)290	(8)159	(5)222	(9)322	(10)665	(9)171	(10)364	(7)945	(6)380
5.16	hrs	5.16	(6)279	(9)289	(8)159	(5)142	(9)322	(10)665	(9)171	(10)364	(7)865	(6)329
7.56	hrs	7.56	(6)250	(9)288	(8)159	(6)747	(9)321	(10)665	(9)170	(10)364	(7)759	(6)269
11.1	hrs	11.1	(6)213	(9)288	(8)159	(6)290	(9)320	(10)664	(9)170	(10)364	(7)628	(6)199
16.2	hrs	16.2	(6)168	(9)286	(8)159	(7)736	(9)319	(10)664	(9)170	(10)364	(7)475	(6)129
23.8	hrs	23.8	(6)118	(9)283	(8)159	(8)959	(9)318	(10)664	(9)169	(10)364	(7)317	(7)676
1.45	days	34.8	(7)716	(9)281	(8)159	(9)496	(9)316	(10)663	(9)168	(10)364	(7)174	(7)264
2.13	days	51.1	(7)336	(9)276	(8)159	(11)639	(9)313	(10)662	(9)167	(10)364	(8)723	(8)665
3.12	days	74.9	(7)113	(9)269	(8)158		(9)308	(10)660	(9)166	(10)364	(8)201	(9)878
4.57	days	109.7	(8)227	(9)259	(8)158		(9)301	(10)658	(9)163	(10)364	(9)289	(10)456
6.70	days	160.8	(9)214	(9)245	(8)157		(9)291	(10)654	(9)160	(10)363	(10)194	(12)593
9.82	days	235.7	(11)656	(9)227	(8)156		(9)278	(10)649	(9)156	(10)363	(12)348	
14.4	days	345.6		(9)202	(8)154		(9)259	(10)641	(9)149	(10)362		
21.1	days	506.4		(9)170	(8)152		(9)233	(10)630	(9)140	(10)361		
30.9	days	741.6		(9)132	(8)149		(9)201	(10)615	(9)127	(10)360		
45.3	days	1,087		(10)918	(8)144		(9)161	(10)592	(9)111	(10)358		
66.4	days	1,594		(10)535	(8)137		(9)116	(10)561	(10)901	(10)355		
97.3	days	2,335		(10)244	(8)128		(10)726	(10)518	(10)670	(10)351		
143	days	3,432		(11)760	(8)115		(10)360	(10)461	(10)430	(10)345		
208	days	4,992		(11)146	(9)992		(10)133	(10)390	(10)232	(10)338		
301	days	7,224		(12)136	(9)802		(11)319	(10)307	(11)942	(10)326		

TABLE B.22 CONTINUED

Age		Ta^{182}	Pb^{203}	Sum of FP
	hr	0.038	0.0993	
Shot Navajo, Average Fallout Composition:				
45.8	min	0.763	(8)414	(6)644	(3)1171
1.12	hrs	1.12	(8)414	(6)642	(4)7727
1.64	hrs	1.64	(8)414	(6)636	(4)4870
2.40	hrs	2.40	(8)414	(6)631	(4)3015
3.52	hrs	3.52	(8)414	(6)621	(4)1868
5.16	hrs	5.16	(8)414	(6)608	(4)1175
7.56	hrs	7.56	(8)414	(6)598	(5)7600
11.1	hrs	11.1	(8)414	(6)560	(5)5065
16.2	hrs	16.2	(8)414	(6)524	(5)3337
23.8	hrs	23.8	(8)410	(6)475	(5)2124
1.45	days	34.8	(8)410	(6)408	(5)1326
2.13	days	51.1	(8)410	(6)329	(6)8054
3.12	days	74.9	(8)407	(6)239	(6)4914
4.57	days	109.7	(8)403	(6)151	(6)3154
6.70	days	160.8	(8)399	(7)762	(6)2061
9.82	days	235.7	(8)391	(7)281	(6)1353
14.4	days	345.6	(8)380	(8)652	(7)8691
21.1	days	506.4	(8)365	(9)762	(7)5473
30.9	days	741.6	(8)344	(10)332	(7)3355
45.3	days	1,087	(8)315		(7)1968
66.4	days	1,594	(8)277		(7)1126
97.3	days	2,335	(8)229		(8)6652
143	days	3,432	(8)174		(8)3877
208	days	4,992	(8)117		(8)1989
301	days	7,224	(9)665		(9)8710

TABLE B.22 CONTINUED

Age		Na^{24}	Cu^{64}	Co^{57}	Co^{58}	Sum of FP
hr		0.00145	0.00217	0.0036	0.0053	
Shot Flathead, Average Fallout Composition:						
45.8 min	0.763	(7)158	(8)857	(9)107	(9)470	(3)1171
1.12 hrs	1.12	(7)155	(8)838	(9)107	(9)470	(4)7727
1.64 hrs	1.64	(7)152	(8)814	(9)107	(9)469	(4)4870
2.40 hrs	2.40	(7)146	(8)786	(9)107	(9)469	(4)3015
3.52 hrs	3.52	(7)139	(8)738	(9)107	(9)469	(4)1868
5.16 hrs	5.16	(7)129	(8)675	(9)107	(9)469	(4)1175
7.56 hrs	7.56	(7)115	(8)592	(9)107	(9)468	(5)7600
11.1 hrs	11.1	(8)982	(8)490	(9)107	(9)467	(5)5065
16.2 hrs	16.2	(8)776	(8)371	(9)107	(9)466	(5)3337
23.8 hrs	23.8	(8)544	(8)247	(9)107	(9)465	(5)2124
1.45 days	34.8	(8)331	(8)136	(9)107	(9)463	(5)1326
2.13 days	51.1	(8)155	(9)564	(9)106	(9)460	(6)8054
3.12 days	74.9	(9)521	(9)157	(9)106	(9)455	(6)4914
4.57 days	109.7	(9)105	(10)226	(9)106	(9)449	(6)3154
6.70 days	160.8	(11)989	(11)152	(9)105	(9)440	(6)2061
9.82 days	235.7	(12)303	(13)271	(9)104	(9)427	(6)1353
14.4 days	345.6			(9)103	(9)409	(7)8691
21.1 days	506.4			(9)101	(9)383	(7)5473
30.9 days	741.6			(10)988	(9)349	(7)3355
45.3 days	1,087			(10)952	(9)304	(7)1968
66.4 days	1,594			(10)902	(9)248	(7)1126
97.3 days	2,335			(10)833	(9)184	(8)6652
143 days	3,432			(10)741	(9)118	(8)3877
208 days	4,992			(10)627	(10)636	(8)1989
301 days	7,224			(10)494	(10)259	(9)8710

TABLE B.22 CONTINUED

Age	Na^{24}	Cr^{51}	Mn^{54}	Fe^{59}	Co^{57}	Co^{58}	Co^{60}	Cu^{64}	Ta^{182}
hr	(2)284	(3)297	(3)53	(3)167	(3)182	(3)289	(3)81	(2)228	(2)6
Shot Tewa, Average Lagoon-Area Composition:									
45.8 min	0.763	(7)310	(11)719	(11)843	(10)163	(11)541	(10)256	(11)339	(8)901	(9)654
1.12 hrs	1.12	(7)304	(11)719	(11)843	(10)163	(11)541	(10)256	(11)339	(8)880	(9)654
1.64 hrs	1.64	(7)298	(11)719	(11)843	(10)163	(11)540	(10)256	(11)339	(8)855	(9)654
2.40 hrs	2.40	(7)287	(11)719	(11)843	(10)163	(11)540	(10)256	(11)339	(8)825	(9)654
3.52 hrs	3.52	(7)273	(11)719	(11)843	(10)163	(11)540	(10)255	(11)339	(8)775	(9)654
5.16 hrs	5.16	(7)253	(11)716	(11)843	(10)163	(11)540	(10)255	(11)339	(8)709	(9)654
7.56 hrs	7.56	(7)226	(11)713	(11)843	(10)162	(11)540	(10)255	(11)339	(8)622	(9)654
11.1 hrs	11.1	(7)192	(11)713	(11)843	(10)162	(11)540	(10)255	(11)339	(8)515	(9)654
16.2 hrs	16.2	(7)152	(11)707	(11)843	(10)162	(11)540	(10)254	(11)339	(8)390	(9)654
23.8 hrs	23.8	(7)106	(11)701	(11)843	(10)161	(11)539	(10)253	(11)339	(8)260	(9)648
1.45 days	34.8	(8)648	(11)695	(11)843	(10)160	(11)539	(10)252	(11)339	(8)143	(9)648
2.13 days	51.1	(8)304	(11)683	(11)843	(10)158	(11)538	(10)251	(11)339	(9)593	(9)648
3.12 days	74.9	(8)102	(11)665	(11)837	(10)156	(11)536	(10)248	(11)339	(9)165	(9)642
4.57 days	109.7	(9)205	(11)642	(11)837	(10)152	(11)534	(10)245	(11)339	(10)237	(9)636
6.70 days	160.8	(10)194	(11)606	(11)832	(10)147	(11)531	(10)240	(11)338	(11)159	(9)630
9.82 days	235.7	(12)594	(11)561	(11)827	(10)140	(11)527	(10)233	(11)338	(13)285	(9)618
14.4 days	345.6		(11)499	(11)816	(10)131	(11)521	(10)223	(11)337		(9)600
21.1 days	506.4		(11)422	(11)806	(10)118	(11)512	(10)209	(11)336		(9)576
30.9 days	741.6		(11)327	(11)790	(10)102	(11)499	(10)190	(11)335		(9)542
45.3 days	1,087		(11)227	(11)763	(11)815	(11)481	(10)166	(11)333		(9)497
66.4 days	1,594		(11)132	(11)726	(11)590	(11)456	(10)135	(11)330		(9)437
97.3 days	2,335		(12)603	(11)678	(11)367	(11)421	(10)100	(11)327		(9)362
143 days	3,432		(12)188	(11)610	(11)182	(11)374	(11)644	(11)322		(9)275
208 days	4,992		(13)362	(11)526	(12)673	(11)317	(11)347	(11)314		(9)184
301 days	7,224		(14)336	(11)425	(12)161	(11)250	(11)141	(11)304		(9)105

TABLE B.22 CONTINUED

Age		Pb^{203}	Sum of FP
	hr	(4)178	
Shot Tewa, Average Lagoon-Area Composition:			
45.8	min	0.763	(10)607	(4)6035
1.12	hrs	1.12	(10)605	(4)3947
1.64	hrs	1.64	(10)600	(4)2430
2.40	hrs	2.40	(10)594	(4)1470
3.52	hrs	3.52	(10)586	(5)8831
5.16	hrs	5.16	(10)573	(5)5246
7.56	hrs	7.56	(10)555	(5)3252
11.1	hrs	11.1	(10)529	(5)2214
16.2	hrs	16.2	(10)495	(5)1524
23.8	hrs	23.8	(10)449	(6)9968
1.45	days	34.8	(10)386	(6)6037
2.13	days	51.1	(10)310	(6)3427
3.12	days	74.9	(10)226	(6)1983
4.57	days	109.7	(10)142	(6)1243
6.70	days	160.8	(11)719	(7)7919
9.82	days	235.7	(11)265	(7)5126
14.4	days	345.6	(12)614	(7)3366
21.1	days	506.4	(13)719	(7)2287
30.9	days	741.6	(14)313	(7)1566
45.3	days	1,087		(7)1048
66.4	days	1,594		(8)6888
97.3	days	2,335		(8)4499
143	days	3,432		(8)2734
208	days	4,992		(8)1401
301	days	7,224		(9)5868

TABLE B.22 CONTINUED

Age		Na^{24}	Cr^{51}	Mn^{54}	Fe^{59}	Co^{57}	Co^{58}	Co^{60}	Cu^{64}	Ta^{182}
	hr	(2)284	(3)297	(3)53	(3)167	(3)182	(3)289	(3)81	(2)228	0.01
Shot Tewa, Average Cloud and Outer Fallout Area Composition:										
45.8	min	0.763	(7)310	(11)719	(11)843	(10)163	(11)541	(10)256	(11)339	(8)901	(8)109
1.12	hrs	1.12	(7)304	(11)719	(11)843	(10)163	(11)541	(10)256	(11)339	(8)880	(8)109
1.64	hrs	1.64	(7)298	(11)719	(11)843	(10)163	(11)540	(10)256	(11)339	(8)855	(8)109
2.40	hrs	2.40	(7)287	(11)719	(11)843	(10)163	(11)540	(10)256	(11)339	(8)825	(8)109
3.52	hrs	3.52	(7)273	(11)719	(11)843	(10)163	(11)540	(10)255	(11)339	(8)775	(8)109
5.16	hrs	5.16	(7)253	(11)716	(11)843	(10)163	(11)540	(10)255	(11)339	(8)709	(8)109
7.56	hrs	7.56	(7)226	(11)713	(11)843	(10)162	(11)540	(10)255	(11)339	(8)622	(8)109
11.1	hrs	11.1	(7)192	(11)713	(11)843	(10)162	(11)540	(10)255	(11)339	(8)515	(8)109
16.2	hrs	16.2	(7)152	(11)707	(11)843	(10)162	(11)540	(10)254	(11)339	(8)390	(8)109
23.8	hrs	23.8	(7)106	(11)701	(11)843	(10)161	(11)539	(10)253	(11)339	(8)260	(8)108
1.45	hrs	34.8	(8)648	(11)695	(11)843	(10)160	(11)539	(10)252	(11)339	(8)143	(8)108
2.13	days	51.1	(8)304	(11)683	(11)843	(10)158	(11)538	(10)251	(11)339	(9)593	(8)108
3.12	days	74.9	(8)102	(11)665	(11)837	(10)156	(11)536	(10)248	(11)339	(9)165	(8)107
4.57	days	109.7	(9)205	(11)642	(11)837	(10)152	(11)534	(10)245	(11)339	(10)237	(8)106
6.70	days	160.8	(10)194	(11)606	(11)832	(10)147	(11)531	(10)240	(11)338	(11)159	(8)105
9.82	days	235.7	(12)594	(11)561	(11)827	(10)140	(11)527	(10)233	(11)338	(13)285	(8)103
14.4	days	345.6		(11)499	(11)816	(10)131	(11)521	(10)223	(11)337		(8)100
21.1	days	506.4		(11)422	(11)806	(10)118	(11)512	(10)209	(11)336		(9)960
30.9	days	741.6		(11)327	(11)790	(10)102	(11)499	(10)190	(11)335		(9)904
45.3	days	1,087		(11)227	(11)763	(11)815	(11)481	(10)166	(11)333		(9)828
66.4	days	1,594		(11)132	(11)726	(11)590	(11)456	(10)135	(11)330		(9)729
97.3	days	2,335		(12)603	(11)678	(11)367	(11)421	(10)100	(11)327		(9)603
143	days	3,432		(12)188	(11)610	(11)182	(11)374	(11)644	(11)322		(9)458
208	days	4,992		(13)362	(11)526	(12)673	(11)317	(11)347	(11)314		(9)307
301	days	7,224		(14)336	(11)425	(12)161	(11)250	(11)141	(11)304		(9)175

TABLE B.22 CONTINUED

Age		Pb^{203}	Sum of FP
	hr	(4)178	
Shot Tewa, Average Cloud and Outer Fallout Area Composition:			
45.8	min	0.763	(10)607	(3)1171
1.12	hrs	1.12	(10)605	(4)7727
1.64	hrs	1.64	(10)600	(4)4870
2.40	hrs	2.40	(10)594	(4)3015
3.52	hrs	3.52	(10)586	(4)1868
5.16	hrs	5.16	(10)573	(4)1175
7.56	hrs	7.56	(10)555	(5)7600
11.1	hrs	11.1	(10)529	(5)5065
16.2	hrs	16.2	(10)495	(5)3337
23.8	hrs	23.8	(10)449	(5)2124
1.45	days	34.8	(10)386	(6)1326
2.13	days	51.1	(10)310	(6)8054
3.12	days	74.9	(10)226	(6)4914
4.57	days	109.7	(10)142	(6)3154
6.70	days	160.8	(11)719	(6)2061
9.82	days	235.7	(11)265	(6)1353
14.4	days	345.6	(12)614	(7)8691
21.1	days	506.4	(13)719	(7)5473
30.9	days	741.6	(14)313	(7)3355
45.3	days	1,087		(7)1968
66.4	days	1,594		(7)1126
97.3	days	2,335		(8)6652
143	days	3,432		(8)3877
208	days	4,992		(8)1989
301	days	7,224		(9)8710

* Assumed same as Mn^{54} from ratio observed at Navajo.
† Based on ratio Sb^{122}/Sb^{124} for cloud sample.
‡ Based on ratio Ta^{180}/Ta^{182} for cloud sample.
§ Based on ratios U^{240}/U^{239} and U^{240}/U^{237} for cloud sample.
¶ Assumed same as Ta^{182}.

TABLE B.24 COMPUTED BETA-DECAY RATES

Beta-emission rates for fission products (FP) and induced products (IP) are computed and summed for the total emission rate in units of (β/sec)/10^4 fissions. Product/fission ratios are listed directly under the nuclide symbol. Conversion to counting rates, (counts/sec)/10^4 fissions, for a weightless mount and (point) source is made in the last column by means of the shelf factor G_n for comparison with experimental results (Table B.25). Numbers in parentheses indicate the number of zeros between the decimal point and the first significant figure, e.g., (2)200 = 0 00200.

Age		Na^{24}	Co^{57}	Co^{58} *	Cu^{64} †	Sum σ FP	counts/sec / 10^4 fissions (G_1 = 0.2628)
	hr	0.00145	0.0036	0.0053	0.00217		
Shot Flathead, Average Fallout Composition:							
45.8	min	0.763	(3)180	No β	(6)756	(3)178	1.544	0.5274
1.12	hrs	1.12	(3)177		(6)756	(3)174	1.009	0.3324
1.64	hrs	1.64	(3)173		(6)755	(3)169	0.634	0.1969
2.40	hrs	2.40	(3)167		(6)755	(3)163	0.398	0.1166
3.52	hrs	3.52	(3)158		(6)754	(3)153	0.255	(1)7335
5.16	hrs	5.16	(3)146		(6)754	(3)140	0.166	(1)4893
7.56	hrs	7.56	(3)131		(6)754	(3)123	0.109	(1)3364
11.1	hrs	11.1	(3)111		(6)752	(3)102	(1)716	(1)2343
16.2	hrs	16.2	(4)880		(6)751	(4)773	(1)456	(1)1615
23.8	hrs	23.8	(4)618		(6)748	(4)513	(1)282	(1)1103
1.45	days	34.8	(4)376		(6)745	(4)283	(1)176	(2)7640
2.13	days	51.1	(4)175		(6)740	(4)117	(1)109	(2)5256
3.12	days	74.9	(5)590		(6)733	(5)327	(2)674	(2)3564
4.57	days	109.7	(5)119		(6)723	(6)498	(2)452	(2)2430
6.70	days	160.8	(6)112		(6)708	(7)315	(2)309	(2)1580
9.82	days	235.7	(8)344		(6)688	(9)566	(2)212	(3)9708
14.4	days	345.6	(10)230		(6)658	(11)141	(2)145	(3)5770
21.1	days	506.4			(6)617		(3)972	(3)3374
30.9	days	741.6			(6)561		(3)637	(3)1957
45.3	days	1,087			(6)489		(3)411	(3)1145
66.4	days	1,594			(6)398		(3)262	(4)6968
97.3	days	2,335			(6)296		(3)170	(4)4478
143	days	3,432			(6)191		(3)105	(4)2765
208	days	4,992			(6)102		(4)590	(4)1553
301	days	7,224			(7)417		(4)311	(5)8184

TABLE B.24 CONTINUED

Age		Na^{24}	Mn^{56}	Fe^{59}	Co^{58} *	Co^{60}	Cu^{64} ‡	Ta^{180} §	Ta^{182}
	hr	0.0314	0.094	0.0033	0.00193	0.0087	0.0278	0.038	0.038
Shot Navajo, Average Fallout Composition:									
45.8	min	0.763	(2)389	(1)572	(5)585	(6)275	(6)363	(2)228	(2)840	(4)267
1.12	hrs	1.12	(2)383	(1)519	(5)585	(6)275	(6)363	(2)223	(2)817	(4)267
1.64	hrs	1.64	(2)374	(1)451	(5)585	(6)275	(6)363	(2)217	(2)779	(4)267
2.40	hrs	2.40	(2)361	(1)368	(5)585	(6)275	(6)363	(2)209	(2)733	(4)267
3.52	hrs	3.52	(2)342	(1)273	(5)584	(6)275	(6)363	(2)197	(2)655	(4)267
5.16	hrs	5.16	(2)317	(1)175	(5)584	(6)275	(6)363	(2)180	(2)578	(4)267
7.56	hrs	7.56	(2)284	(2)918	(5)583	(6)274	(6)363	(2)158	(2)471	(4)267
11.1	hrs	11.1	(2)241	(2)356	(5)581	(6)274	(6)363	(2)131	(2)349	(4)267
16.2	hrs	16.2	(2)191	(3)904	(5)580	(6)273	(6)363	(3)991	(2)226	(4)266
23.8	hrs	23.8	(2)134	(3)118	(5)577	(6)272	(6)363	(3)658	(2)119	(4)266
1.45	days	34.8	(3)813	(5)610	(5)573	(6)271	(6)363	(3)363	(3)464	(4)265
2.13	days	51.1	(3)380	(7)785	(5)567	(6)270	(6)363	(3)150	(3)116	(4)264
3.12	days	74.9	(3)128	(9)132	(5)558	(6)267	(6)362	(4)418	(4)154	(4)262
4.57	days	109.7	(4)257		(5)546	(6)263	(6)362	(5)639	(6)798	(4)260
6.70	days	160.8	(5)243		(5)529	(6)258	(6)362	(6)404	(7)104	(4)256
9.82	days	235.7	(7)744		(5)504	(6)250	(6)361	(8)726	(10)178	(4)252
14.4	days	345.6	(9)499		(5)470	(6)240	(6)361	(10)181		(4)245
21.1	days	506.4			(5)424	(6)225	(6)360			(4)235
30.9	days	741.6			(5)365	(6)204	(6)359			(4)222
45.3	days	1,087			(5)292	(6)178	(6)357			(4)203
66.4	days	1,594			(5)212	(6)145	(6)354			(4)179
97.3	days	2,335			(5)132	(6)108	(6)350			(4)148
143	days	3,432			(6)653	(7)694	(6)345			(4)112
208	days	4,992			(6)241	(7)372	(6)337			(5)752
301	days	7,224			(7)579	(7)152	(6)325			(5)429

TABLE B. 24 CONTINUED

Age hr	Sum of FP	Counts/sec 10^4 fissions (G_3 = 0.0958)
Shot Navajo, Average Fallout Composition:		
45.8 min 0.763	1.544	0.172
1.12 hrs 1.12	1.009	0.113
1.64 hrs 1.64	0.634	(1)714
2.40 hrs 2.40	0.398	(1)455
3.52 hrs 3.52	0.255	(1)300
5.16 hrs 5.16	0.166	(1)201
7.56 hrs 7.56	0.109	(1)136
11.1 hrs 11.1	(1)716	(2)913
16.2 hrs 16.2	(1)456	(2)599
23.8 hrs 23.8	(1)282	(2)382
1.45 days 34.8	(1)176	(2)242
2.13 days 51.1	(1)109	(2)149
3.12 days 74.9	(2)674	(3)912
4.57 days 109.7	(2)452	(3)592
6.70 days 160.8	(2)309	(3)388
9.82 days 235.7	(2)212	(3)252
14.4 days 345.6	(2)145	(3)162
21.1 days 506.4	(3)972	(3)103
30.9 days 741.6	(3)637	(4)663
45.3 days 1,087	(3)411	(4)422
66.4 days 1,594	(3)262	(4)271
97.3 days 2,335	(3)170	(4)179
143 days 3,432	(3)105	(4)112
208 days 4,992	(4)590	(5)643
301 days 7,224	(4)311	(5)343

* 0.57 β^+/dis. † 0.128 β^+/dis. ‡ 0.21 β^-/dis. § Product ratio assumed same as Ta^{182}.

TABLE B.28 HOW ISLAND SURVEYS, STATION F
II. RESOLUTION OF IONIZATION RATES BY EVENT

The ionization rates for Shots Zuni, Navajo, and Tewa are shown; Shots Flathead and Dakota produced negligible amounts of fallout.

Hours Since				Ionization Rate, mr/hr					
						TE			
ZU	FL	NA	TE	ZU *	Na †	By Diff. ‡	By Relative Decay §	Mean Observed and σ	Residual Error
								pct	pct
11.2	—	—	—	1,714	—	—	—	1,714 ± 9.18	—
30.3	—	—	—	561	—	—	—	561	—
52.5	—	—	—	292	—	—	—	292	—
100.6	—	—	—	142	—	—	—	142	—
124.2	—	—	—	101	—	—	—	101	—
149.0	—	—	—	84.1	—	—	—	84.1	—
197.6	—	—	—	57.7	—	—	—	57.7	—
246.6	—	—	—	41.9	—	—	—	41.9 ± 22.5	—
370.4	9.9	—	—	20.9	—	—	—	20.9	—
388.3	27.8	—	—	20.8	—	—	—	20.8 ± 15.6	—
412.4	51.9	—	—	18.2	—	—	—	18.2	—
1,018	658	—	—	8.82	—	—	—	8.25 ± 29.3	—
1,063	703	7.1	—	8.60	71.4	—	—	80.0	—
1,066	706	10.5	—	8.60	43.5	—	—	52.1	—
1,085	725	28.9	—	8.46	7.24	—	—	15.7	—
1,112	752	56.1	—	8.32	4.18	—	—	12.5	—
1,304	944	248	8.5	7.55	0.463	220	199.2	228 ± 12.5	−9.45
1,306	946	250	10.6	7.55	0.456	185	161.7	193 ± 13.2	−12.6
1,324	964	268	28.6	7.48	0.410	79.6	64.3	87.5 ± 11.7	−19.2
1,349	989	293	53.2	7.48	0.364	24.9	34.5	32.7 ± 9.88	+38.5
1,395	1,035	339	98.8	7.34	0.293	12.1	15.3	19.7 ± 15.4	+26.4

* Computed from ZU + 1018 hr and later by 4-π gamma relative ionization decay of How F-64 ZU, Tray 856.

† Computed from difference, observed ZU, to NA + 56.1 hours; thereafter by 4-π gamma relative ionization decay of YAG 40-A-1, Tray P-3753.

‡ Computed from difference, observed (ZU + NA).

§ Computed from best fit of 4-π gamma relative ionization decay of YFNB 13-E-57, Tray 1973.

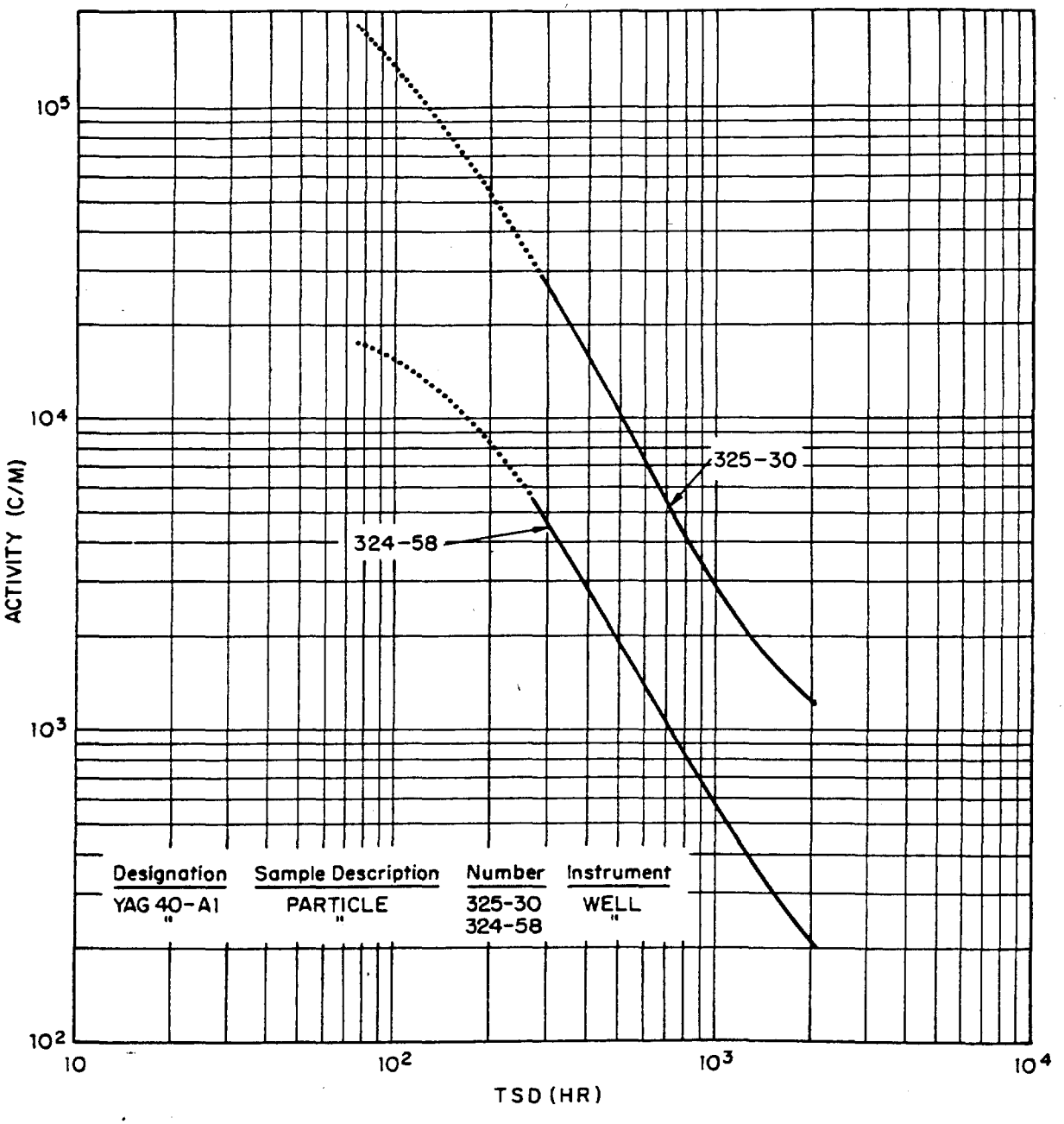

Figure B.2 Gamma decays of solid fallout particles, Shot Zuni.

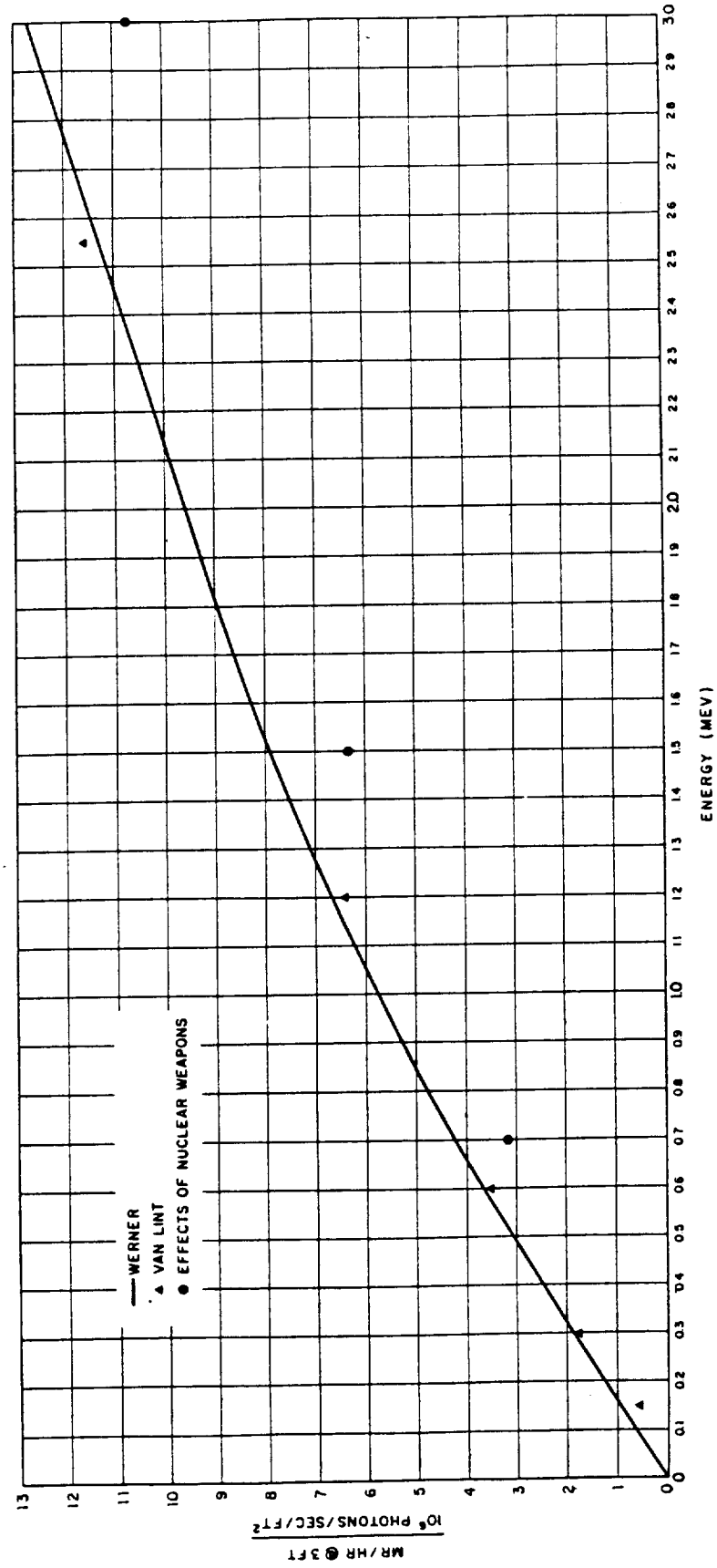

Figure B.6 Computed gamma-ionization rate above a uniformly contaminated smooth infinite plane.

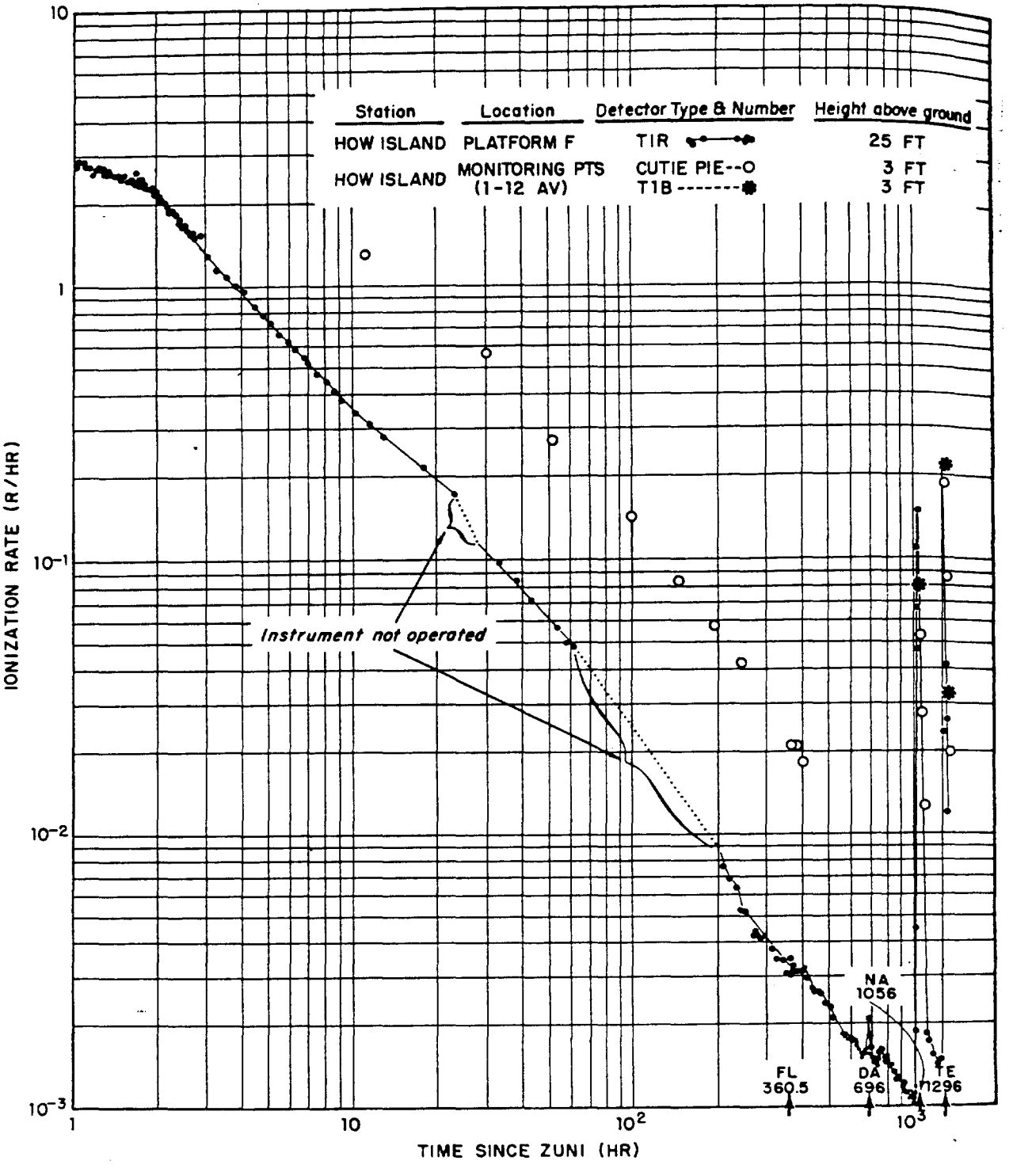

Figure B.7 Gamma-ionization-decay rate, Site How.